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The willful ways and wiles of mermaids, enchantresses of art and history (p. 86)

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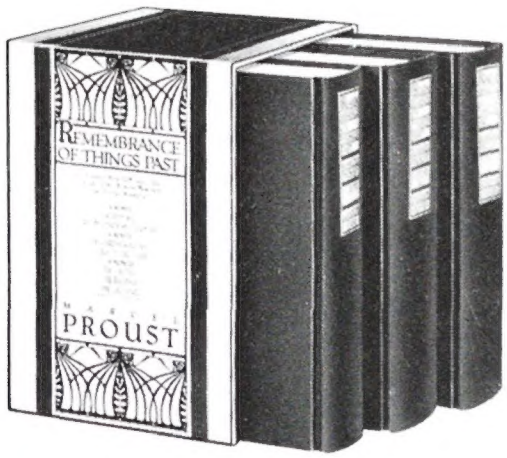

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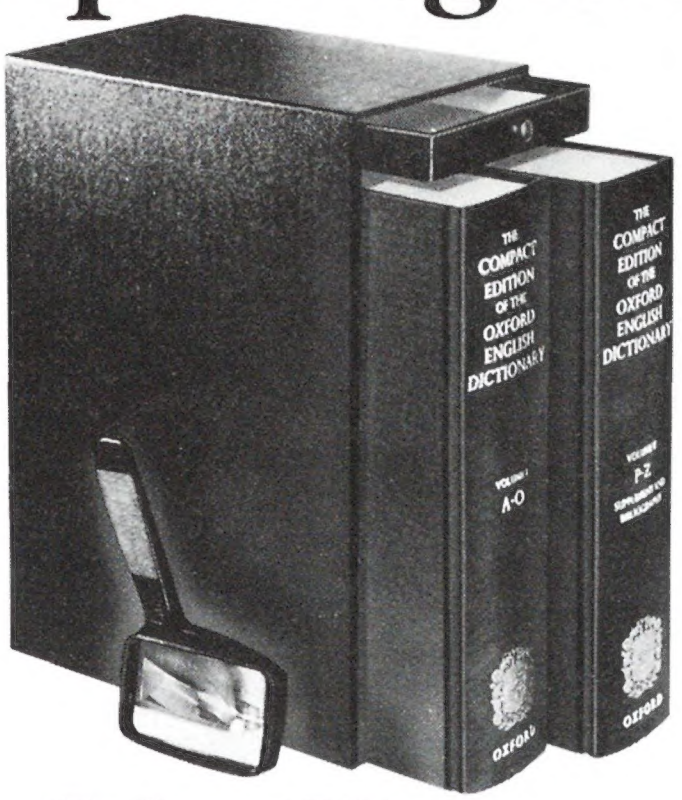

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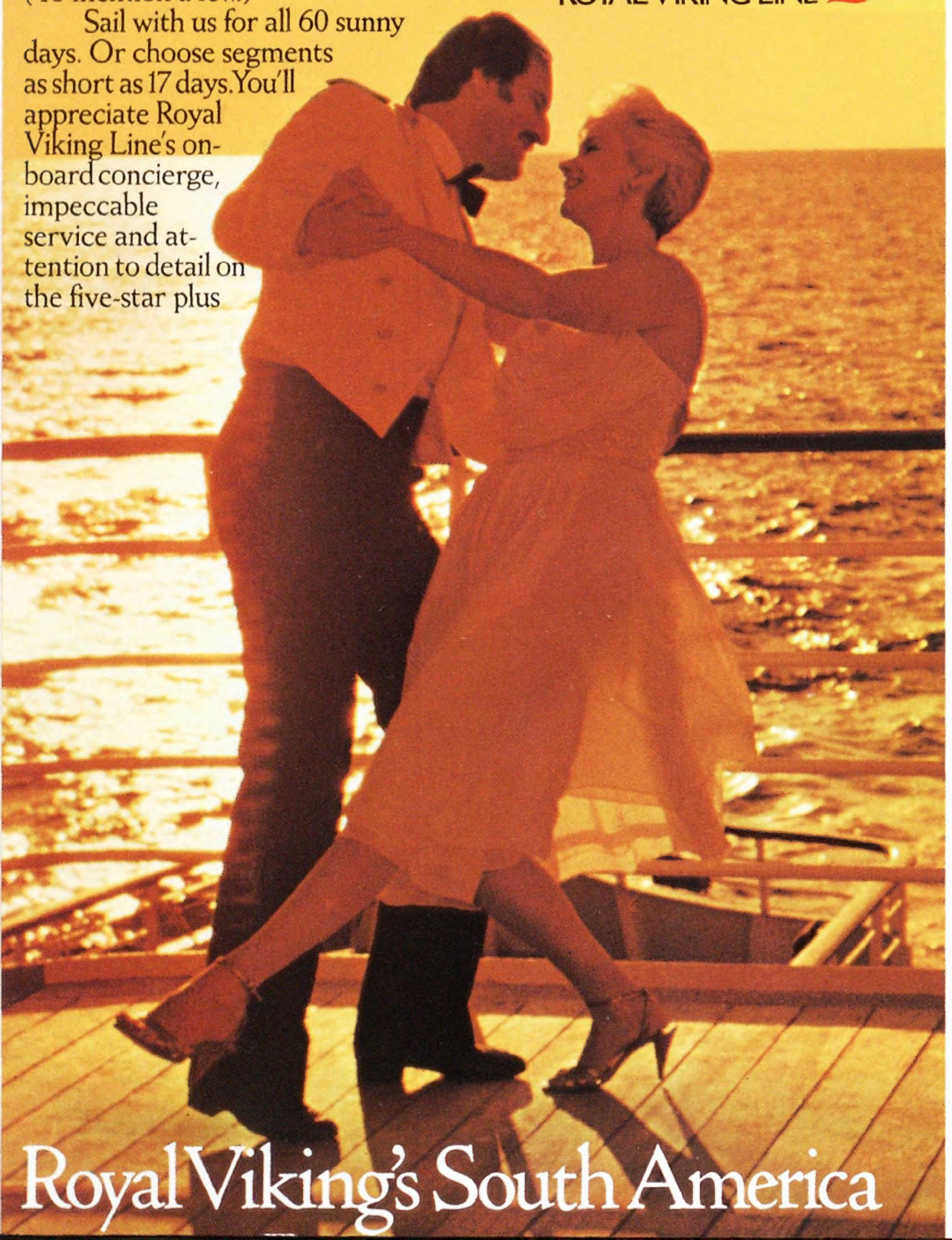

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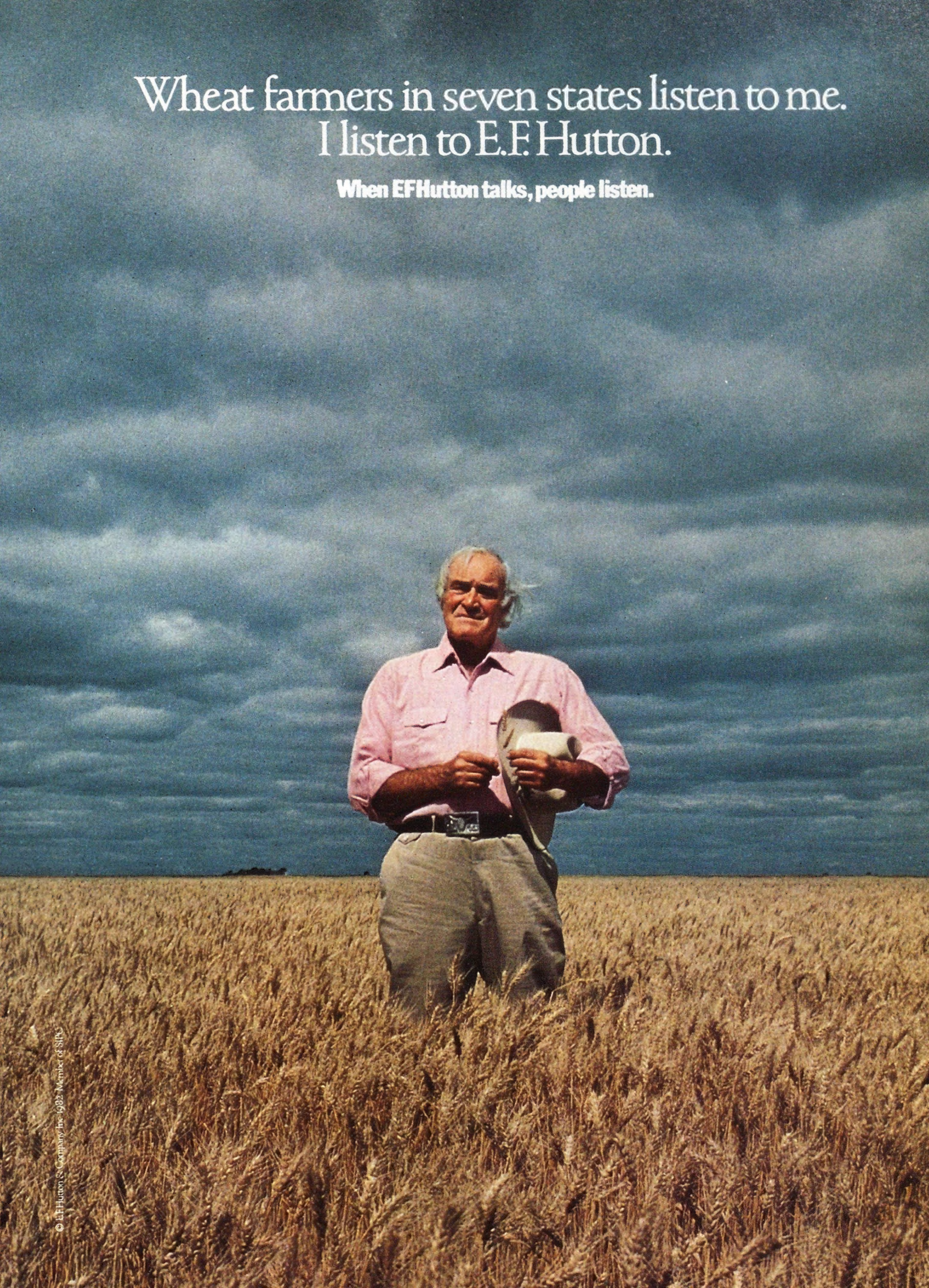

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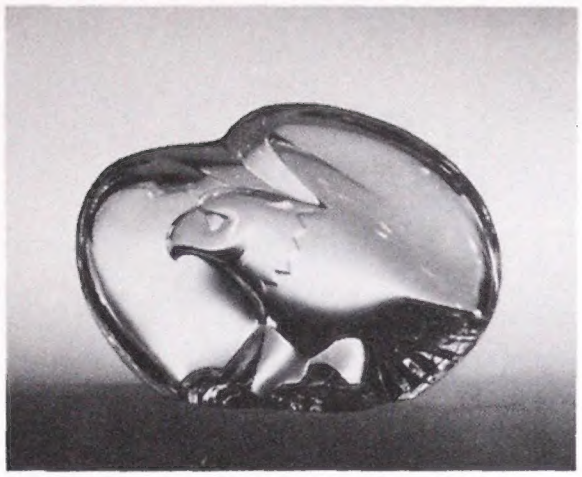

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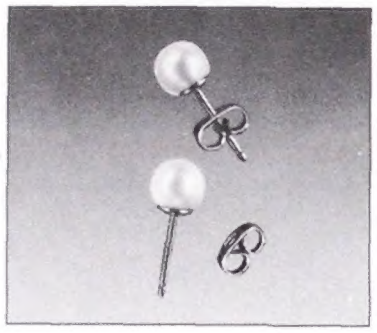

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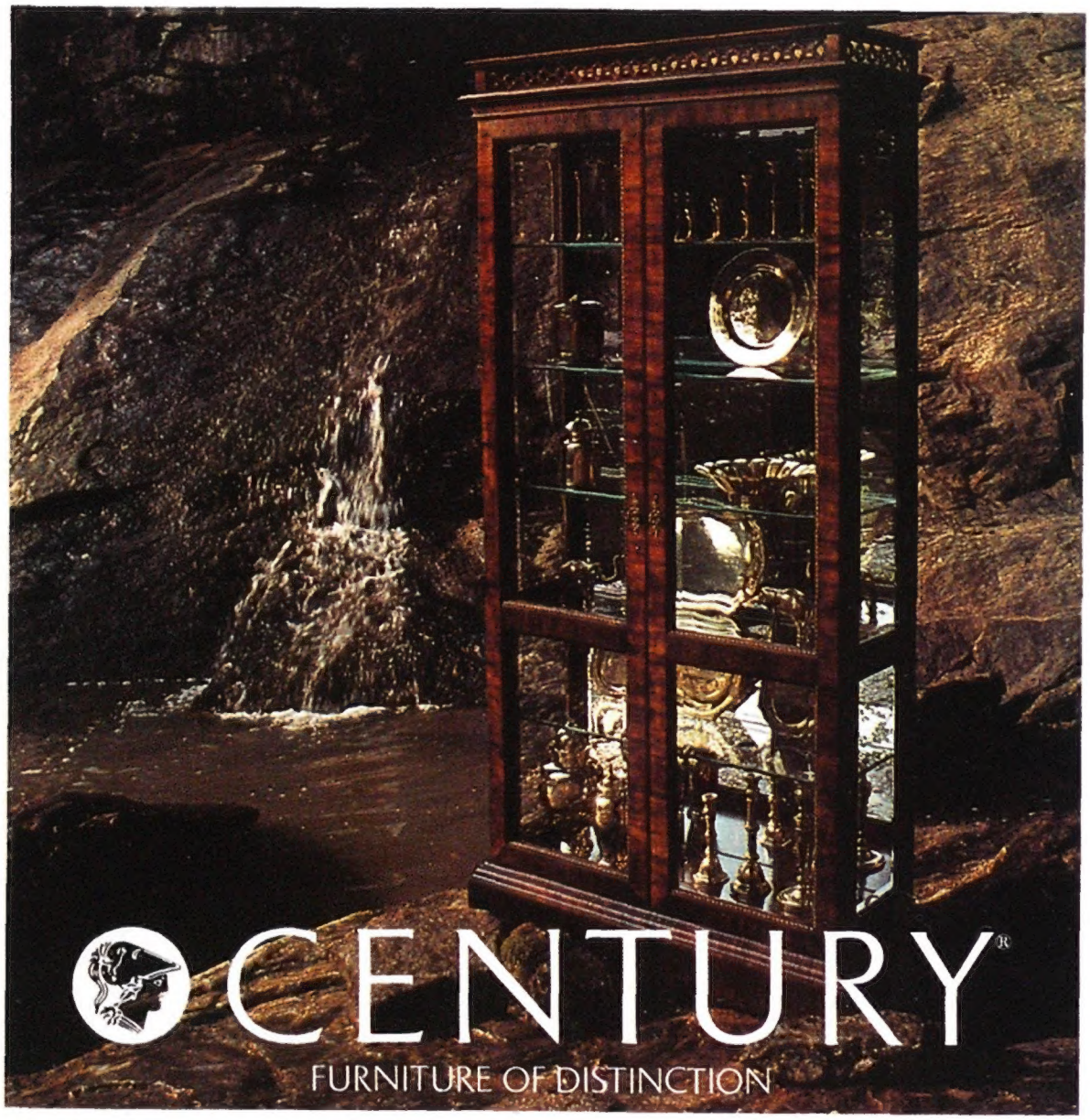

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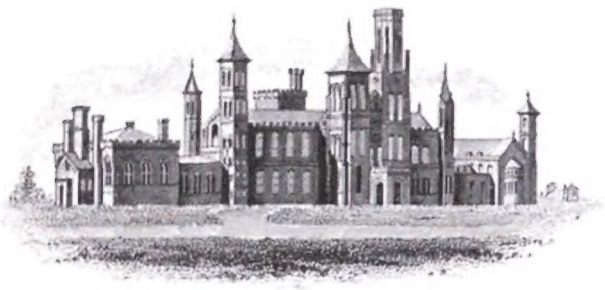

The states of the Persian Gulf are having a construction boom, but they must get ready for the time when the oil runs out

To revisit the states of the Persian Gulf after a spell of years is an absorbing intellectual experience. So vast have been the changes that there is little, if any, room for nostalgia. The Gulf coast of years ago stretched unbroken from the river-delta marshes of southern Iraq to the hooked tip of the mountainous peninsula at the Strait of Hormuz, interrupted only here and there by hills in Qatar, or by the drills and tanks of the dawning oil boom on Bahrain Island and the nearby coast of Saudi Arabia.

Now, like a mirage from the *Arabian Nights*, the coast is lined for miles with new construction: towering buildings on the skyline, strange mushrooms of water towers, and power lines. Superhighways lead to new shipping ports and international airports. Cars of all kinds speed along them, occasionally passing the abandoned hulks of wrecked autos, some with indented tops from hitting camels at night (for a camel thrown into the air by impact tends to have its revenge by smashing in the car top above the driver's seat).

Elegant villas line the wide streets, here and there banked with verdant groves of trees, already reaching toward their roofs. The architecture of the houses is Art Deco/gingerbread/Islamic. The phantasmagoria of design answers a craving for individuality, pleasing in itself, though fraught with the need to ornament, as in the Victorian Age. But office buildings and hotels mirror similar high-rises everywhere in what one might term the International Nonstyle. Modern mosques, on the other hand, are often as unconventional as modern churches of other faiths in Europe or North America.

The Persian Gulf states are in the throes of active development and expansion, and for the most part keenly aware of their responsibilities and evolution. An economy built on oil, recently emerged from the traditional nomadic Bedouin way of life, marginal as a knife-edge, can only prepare for the eventual depletion of the golden lifeblood by diversifying the economy and educating the population. The degree of prudence and care shown in such preparations is the only safeguard for the next generations.

Despite second-generation excesses here and there in conspicuous consumption, I am greatly impressed by the efficiency of the transition. If the young will work, they have nothing to fear. It remains to be seen how the effect of immense new riches will be taken in stride, and whether benign paternalism—setting aside funds for the future, guarding assets by diversifying investments abroad—will be able to protect these new, rather vulnerable nations.

The experience is worth watching. The peoples of these new nations are worth supporting, for inherently they are friendly, extremely able, shrewd and careful, hence conservative. Perhaps they will match the Swiss in time as bankers to the world. As my friend Louis Halle once remarked, the Swiss have managed to survive internal competition and jealousy in their cantons by substituting manners for affection. This Middle Eastern world, now alternating between hot and cold, may eventually reach smooth waters by the substitution of rigor and disciplined friendship for jealousy and parochialism. There is a desperate need for such a survival pattern.

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Letters to the Editor

Margaret Mead

Dear Sir: Regarding Jane Howard's article in the April SMITHSONIAN, Derek Freeman should be less concerned with "staggering the establishment" and more with producing an accurate piece of work. There is no doubt that Margaret Mead was influenced by her training under Boas, her time, her place, her age. Nevertheless, she was a pioneer in a new field and she made a tremendous effort to report what she saw. There were no courses in field methods in those days. Her contribution to anthropology and to the American way of life was outstanding. Continuous questioning may be more important than answers, and she never ceased asking questions.

The conflict that has arisen over her work resulting from the publication of Freeman's book should be seen as the ability of the anthropological community to grow, to correct itself and to provide new material for debate, instead of engendering a ridiculous quibbling about the destruction of Mead's reputation versus the quality of Freeman's work.

Anthropologists seem to take great delight in cutting one another off at the knees, even though it makes none of them taller. As we are close to being an endangered species anyway, I suggest we concentrate more on the accuracy of our work and less on the destruction of other anthropologists.
Elizabeth A. Wright
San Francisco

Dear Sir: As a physician who recently lived and worked on the tiny island of Ta'ū (pop. 900) where Margaret Mead did the 1925 fieldwork for *Coming of Age in Samoa*, I was surprised to see this work criticized by Derek Freeman. Isolated from the larger Samoan islands, Ta'ū was ideal for profitable and efficient anthropological study, with its village life relatively uncomplicated and transparent. After six months of living in the village and establishing friendships with the islanders, it is doubtful that a woman of her training and insights could have been so misinformed about life there. As in any other small community, secrets did not keep long in Ta'ū.

Critics who dispute Mead's findings of social harmony by citing a high rape rate during the mid-1960s in Samoa as a whole, may be ignorant of 1925 conditions in isolated, safer Ta'ū. It is taboo to compare coconuts with pineapples.
Lee Cranberg, M.D.
Iowa City, Iowa

Dear Sir: I see the "Debunk Margaret Mead" campaign is in full swing. Although I am not a rabid fan of hers, it annoys me that the major point—that she was a pioneer, and pioneers in any field make mistakes—is almost ignored.

Another point virtually ignored is the possibility of rapid social change during the period between the two studies. Looking at studies of the natives of Phoenix in 1930 and again in 1960, you would wonder whether both were about the same place.

Furthermore, did Mead's and Freeman's studies cover the same classes of people? And what was the cultural diversity across the 150 miles separating the two? Run a study of Philadelphia and of a coal town 150 miles away and try to compare them.

Too little emphasis is placed on the fact Mead was *establishing* procedures, not following established procedures.
Louis E. Fay
Clemson, South Carolina

Dear Sir: I saw Freeman on the Phil Donahue TV show. He came across as a man utterly unwilling to listen to any point of view except his own, shouting down other speakers before they had a chance to express their ideas.

I will continue to believe that there is room in the scientific community for both Freeman and Mead.
Emily Exner Chi
Chapel Hill, North Carolina

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Fabergé

Dear Sir: I have been asked, often, to choose the best of Fabergé's Imperial Eggs. Without hesitation, it would be the 1903 Peter the Great [below], now in the collection of the Virginia Museum of Fine Arts in Richmond. It has all of Fabergé's subtlety and quality, but also explodes in a burst of color and nationalistic pride, commemorating as it does the bicentenary of the founding of St. Petersburg in 1703.

It is in four colors of gold, set with diamonds and rubies and decorated with enamel. There are four miniatures by Zuiev—Peter the Great, his wooden hut, Nicholas II and the Winter Palace.

As the egg is opened, a miniature of Falconet's statue of Peter the Great in St. Petersburg rises. It is of gold mounted on a large and fine sapphire polished to resemble the granite plinth of the original. The plaza and railing are beautifully detailed in enamel on polished and engraved golds; the lid's interior is a brilliant golden-yellow enameled "sun."
Peter L. Schaffer
A La Vieille Russie
New York City

Dear Sir: Nicholas II came to the throne in 1894 and not in 1896, the year in which he was married. Therefore, the Lilies of the Valley Egg with portraits of his children could not date from 1889.
John Colozzi
Washington, D.C.
Mr. Colozzi is correct. Nicholas II succeeded his father on November 1, 1894, and was crowned in Moscow on May 26, 1895. The Lilies of the Valley egg dates from 1898. Ed.

CCC

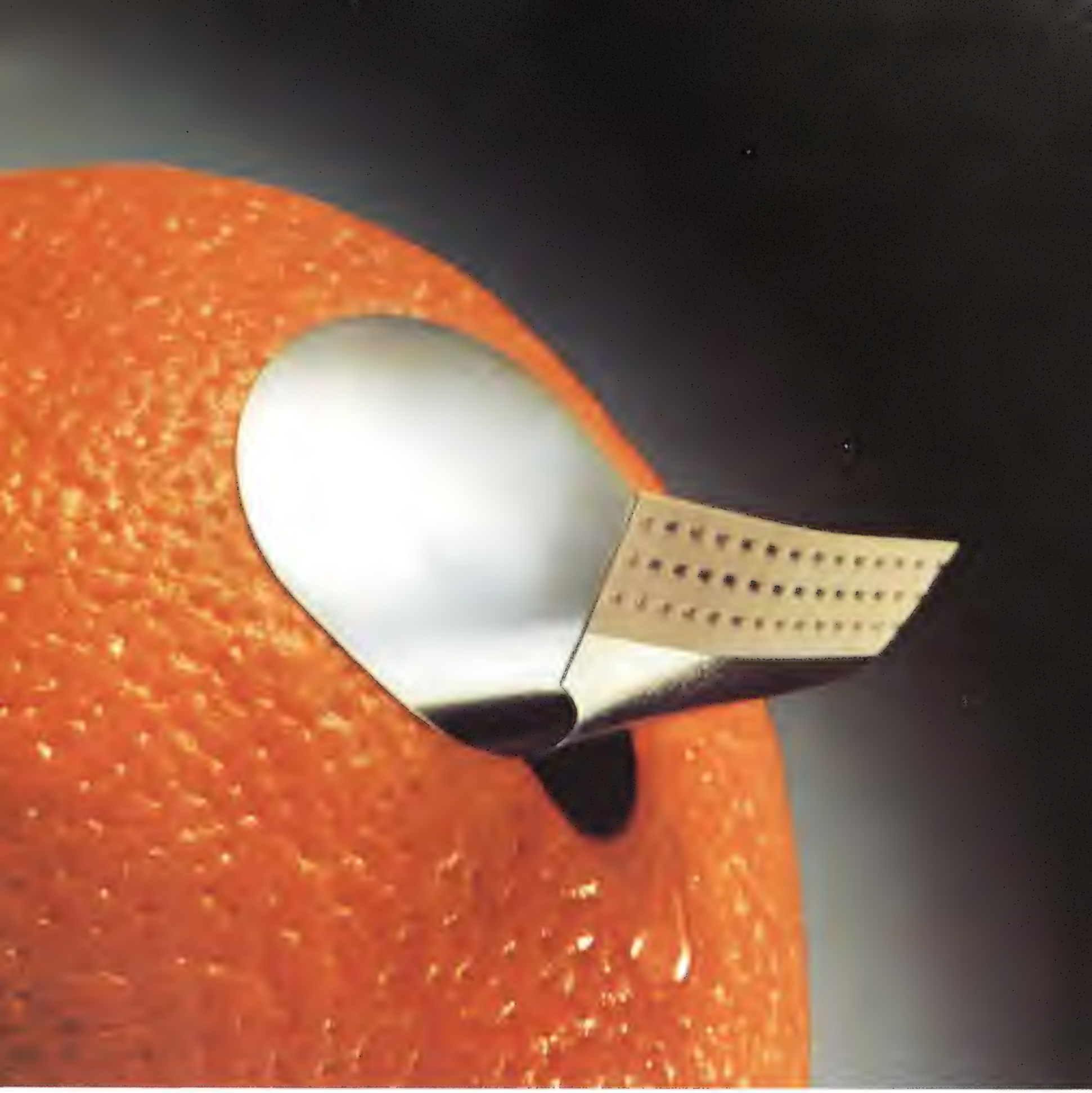
Dear Sir: Your article about the California Conservation Corps brought back memories of the original Civilian Conservation Corps. Thanks to my service in the CCC from January 1934 to August 1936, for the first time in my 18 years I was well fed, clothed and housed and had adequate medical care and money in my jeans. Also, I was given the opportunity to gain self-confidence and acquire skills and goals that have served me well.

The goal I chose was to become a freelance writer and novelist, in which I have succeeded to a modest degree. Currently I am nearing completion of a novel about a Depression-scarred, homeless teen-age drifter—myself—and his experiences in the CCC and later in the World War II army where, thanks to his experience, he advanced rapidly to sergeant major. Not too bad an accomplishment for a high school dropout who entered the mainstream of life during deep Depression days. FDR's Tree Army, I thank you.
Tom E. Clarke
Seattle

Dear Sir: I grew up in the San Jacinto Valley and used to ride up the trail to the top of Mt. San Jacinto to watch while the CCC was building the tramway down to Palm Springs. I'm pleased the trail is being maintained so others can enjoy the beauty of those rugged mountains.

The new CCC is one of the best things that has happened out here in a very long time. Let's hope that California will again prove to be a leader, and that other states will soon have similar programs.
Tina L. Bandick
Lakeside, Arizona

Dear Sir: Thomas A. Bass' article rekindles memorable times in my past, times I hope that today's youth will be



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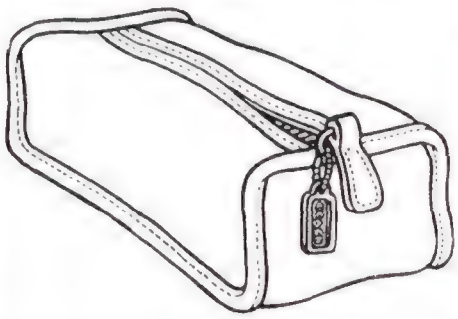

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able to experience. In March the House of Representatives approved, by an overwhelming majority, a bill to establish an American Conservation Corps, thus providing jobs for young people and preserving the natural resources of our nation. If the Senate follows suit and the administration does not veto, we will see a revival of the original Civilian Conservation Corps, that magnificent army of youth and peace that awakened many Americans to conservation and self-reliance some 50 years ago.

I was a member of Company 1243, SP 44, at West Haverstraw and Watkins Glen, New York, on the border of Lake Seneca in the Finger Lakes region. Our wages were $30 monthly, of which $25 automatically went back home, leaving $5 per month for all personal expenses.

To hold on and not "go over the hill" and quit, one was forced to exert a great deal of self-discipline. At the time I coined an expression to describe it: "Adversity is our only salvation." But it paid off when I served with the 28th Infantry Division in World War II and was taken prisoner and interned in Stalag IX B, Bad Orb, Germany.

Richard V. Grulich
Baldwin, New York

Brooklyn Bridge

Dear Sir: Richard Stengel's excellent article might have included the further remarks of Congressman Abram S. Hewitt at the bridge's dedication when he described it as a monument to woman as well and to "her capacity for that higher education from which she was too long debarred."

A sick man, Chief Engineer Washington Roebling was able to supervise the building of the bridge by telescope from his bedroom because his wife not only recorded his instructions and delivered them to the assistant engineers, but also mastered the principles of engineering and higher mathematics so she could conduct on-site inspections. It was Emily Roebling who negotiated with the contractors and dealt with the directors of the bridge company.

Bernice L. Poss
Buffalo, New York

Dear Sir: I have a special reason for my interest in Richard Stengel's article. My father, Theodore M. Hopke, was born in New York City in 1858 and as a young man he and his friends were intensely interested in the building of Brooklyn Bridge. One Sunday, with no workmen around, they climbed to the top of the Manhattan tower and discovered a flimsy catwalk leading to the other tower. With only side ropes to hold to, they walked across to the tower on the Brooklyn side.

I have never crossed that bridge and looked up at the height of those towers without a shudder, recalling Father's perilous walk.

Elizabeth E. Hopke
Dallas, Texas

Dear Sir: My strolls across that noble span number in the hundreds, and yet I still feel a surge of anticipation and wonder each time I mount the steps to its walkway. Perhaps one might explain the universal affection which the bridge inspires by paraphrasing Samuel Johnson's salute to his beloved London and saying: "When a man is tired of Brooklyn Bridge, he is tired of life."

Kenneth Weitzenhoffer
Brooklyn Heights

Space suits

Dear Sir: My father, Russell Colley, did indeed sew portions of Wiley Post's full pressure suit on my mother's sewing machine. As a child of 11 I watched him draw patterns, cut, sew, discard and repeat the process over and over.

To set the record straight, my recollection that Wiley owed me $60,000 was faulty. I've found his IOU—written with his fountain pen on a scrap of dark brown leather from the boot bindings my father was stitching. There's no dollar sign and the amount is 50,000, but he didn't say 50,000 what!

More than a year later I was thrilled to receive a telephone call from this famous man whom I adored—of course the call was for Dad, but at the time I thought it just for me—and in that conversation Wiley told me he had decided to pay off his debt, in kisses. I saw him only once or twice after that; tragically, he did not live long enough for me to collect.

Our family and the world lost a good friend that August day in 1935 when Wiley Post's plane, with Will Rogers on board, crashed near Point Barrow, Alaska.

Barbara Colley Fludine
Lakewood, Ohio

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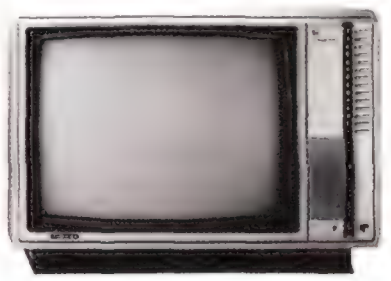

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Around the Mall and beyond

During the recent springtime, devoted television watchers may have stumbled upon a special program about Leonardo da Vinci, underwritten by IBM. The commercials were public-service statements uttered by Walter Cronkite, mainly at the Smithsonian. Thus they combined two hallowed institutions, and so were rendered irreproachably dignified.

Since I have long harbored a raffish interest in television and in how it reaches out to the Great Consumer Belt Out There in the Heartlands of America, I bustled right around to the National Air and Space Museum early on a Saturday morning to watch one of these dignified and believable commercials being made.

Picture the scene: a weekend morning in spring. Though it's an hour to opening time, buses are pulling up at the museum doors with the frequency of Boeing 727s at O'Hare. Visitors are packed outside the still-closed entrances like bargain hunters at a white sale. And inside, an efficient, experienced team of some 70 people is preparing to produce a single audiovisual scene that will occupy less than one minute on television.

About 25 of that team are extras—actors assigned to play the roles of sightseers, dimly seen in the background behind Cronkite. The rest are television's endless technical experts—people setting up lights and light reflectors; people laying a track for the camera dolly; people roping off the area of the museum that is to be screened; people conferring, murmuring to each other on walkie-talkies, aiming light meters at dark corners, munching doughnuts and sipping hot coffee from plastic cups.

Walter Cronkite is to appear on the

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I understand that I need send no money at this time. I will be billed in 4 equal monthly installments of $37.50* each with the first payment due before the work is sent to me.

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catwalk that flanks the Multiple Docking Adapter and the Airlock Module (they are part of the giant Skylab exhibit that dominates the museum's Space Hall). He is to start saying his lines as he walks past the module. He will still be talking as he descends the stairs from the catwalk. He will then pause on the stairs, look straight into the camera and finish his oration.

A stand-in goes through the action, saying the lines, while the camera rolls silently past on its dolly and the sound technicians adjust levels of volume. The stand-in does it again and again, and people hold light meters against him.

In the background the extras go through their parts. Their act is carefully orchestrated. A teen-age girl sits on the base of an exhibit, too tired to go on. Her "mother" exhorts her to get up and go over *there* where there's something important to see, but she shakes her head. She wants to go to the elevator that takes people up to the cafeteria. Another "mother" and "father" dutifully follow their excited little boy as he finds one treasure after another to feast his eyes on. A young couple strolls past giant rockets, more interested in each other than in the hardware. Three young men pause beside another rocket exhibit and discuss it with some apparent knowledge. And so on—the bored, the enthusiastic, the young and old, the hungry and the hung over.

And now it's time for the museum doors to open and the real visitors to enter. Many crowd up to the ropes to watch the filming. I can see mothers (real mothers, that is) and daughters, parents and small boys, young lovers, experts—just like the extras, only they just don't *act* like sightseers as well as the extras do.

For one thing, the real people are noisier, mostly because the extras have been told to keep quiet. When you are among the real visitors you hear German, French, Spanish, Dutch and Boston. And this being school vacation time, there are, I estimate, about 85 million young people among the real visitors.

Cronkite appears so quietly that the visitors don't notice him. The TV people notice him, but part of the mystique of being on a television team is to act cool when you see a big star (in television they call a big star "the talent"). There is no such inhibition among members of the Smithsonian staff. The handful of us at

Director (left) frames Walter Cronkite on catwalk steps at Air and Space Museum.

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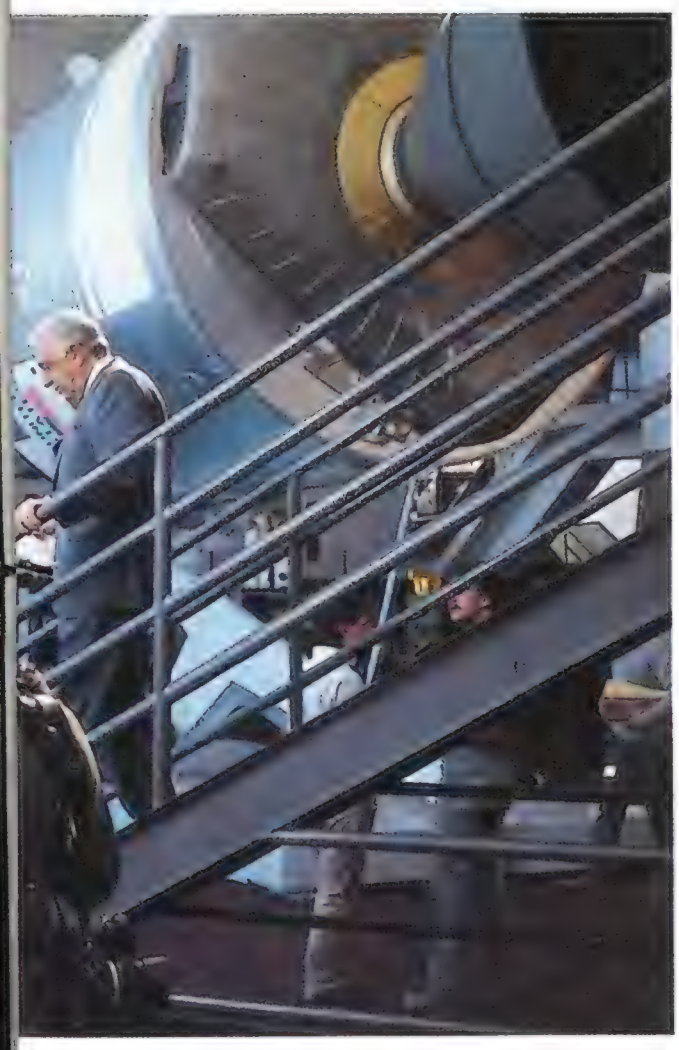

this particular happening are gawking unashamedly at the talent.

Lights blaze. Walter Cronkite walks through his part. Then the ritual of the actual shooting begins. Authoritative voices: "Everybody ready!" "Full sound." Another voice: "Speed." Yet another: "Take one!" The director: "Stand by . . . ready . . . and . . . *action*!" and a voice near the extras repeating, "Action!" And then a wonderfully formal, stylized touch. The director looks up at the talent and says, politely, "Mr. Cronkite."

And suddenly there is Uncle Walter as we all remember him from countless news spots and space shots—urbane, knowledgeable, dependable, trustworthy. His voice takes on that familiar timbre: ". . . to change the world from ancient to modern and reach realms. . . ." His mien and gestures stir delicious familiarity. All's well with the world. Then there's a small hitch in the words. "I'm sorry," he says, simply, to the director.

So it starts again: "Positions . . . everybody ready . . . full sound . . . speed . . . take two. . . ." Another take. "That wasn't my best," says the talent. Take five: ". . . beyond even Leonardo's dreams. As you can see here at the Smithsonian in Washington, we have entered a new age."

They did about nine takes. By the time they had finished, all those people crammed behind the ropes had given up in disgust and gone to look over the displays. The extras were still going through their business. They hadn't given up in disgust. That's the difference.

I left the scene rather thoughtfully. Ernest Hemingway wrote about his search for "one true sentence" when he was working in Paris in the youth of his talent. That was praiseworthy, and we honor the idea. But here, right in the middle of this plastic age, with Hemingway long dead, I had just watched this new, slick, visual medium go hammering after its perfect scene with the same nagging dissatisfaction, the same generous self-criticism that Hemingway went through as he sat with his notebook in a Paris café. We think of Hemingway's ordeal of writing with respect and we take cheap shots at television. But that TV team, patiently slugging its way through nine takes, was looking for the same truth.

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Phenomena, comment and notes

Brain research might lead to flattering conclusions about how we can learn to take charge of our mental processes

Some years ago an editor here lent me her copy of Colin Wilson's science-fiction novel *The Mind Parasites*. The premise is hackneyed: aliens have colonized the Earth by burrowing into human brains and living there. To ensure that we do not catch on and do something about them, the aliens keep us functioning at about five percent of our mental capacity. The story is fun, but the book stays in my mind because Wilson was so persuasive about how glorious life would be if we could throw off the mental habits, thinly disguised in the book as alien parasites, that hold us back. A vision still comes to mind of 10,000 alienated underachievers visibly straightening up and sitting taller as they read *Mind Parasites*, wondering how this marvelous man could know them so well.

Now another editor here has passed on his copy of a more recent Wilson, a nonfiction treatment of the idea called *Frankenstein's Castle*. The message is the same, that we are not living up to our potential. The idea is not new, of course; Wilson quotes William James:

"There seems to be no doubt that *we are each and all of us to some extent victims of habit-neurosis*. . . . We live subject to arrest by degrees of fatigue which we have come only from habit to obey. Most of us can learn to push the barrier further off, and to live in perfect comfort on much higher levels of power."

Wilson is fascinated with what he calls the "other mode of consciousness," a "sudden feeling of intense joy," which he considers to be primarily a sudden increase in our powers of perception, "an awareness of . . . the actuality of the world outside me." Near the end of the book, Wilson puts it this way:

"The trouble lies in ourselves: in this curious failure of the sense of reality. This deficient sense of reality seems to lie, for example, at the root of all mental illness. Consider what happens when someone begins to feel 'run down.' Life begins to seem repetitive and futile; it costs an effort to get through the working day. Then he takes a fishing holiday, and within a couple of weeks is feeling cheerful and alive and ready to face the winter. What precisely has happened? Well, it sounds absurd when expressed in so many words: but what has happened is that the holiday has convinced him of the real existence of the rest of the world."

This kind of thing makes me, in that embarrassing phrase of pop psychology, "feel good." I really believe that most of us hardly ever get out of first gear, and that certainly includes me. Our days are a routine and our minds become half-blind as the world we see day in and day out becomes deadeningly familiar. To me there has always been something wonderful about the opening credits for *M*A*S*H*. These are people, thrown together by chance, who are unhappy, bored, bickering, scheming—until a helicopter hits the pad. And then you have that wonderful shot of men and women, officers and enlisted men, regular army and draftees, running flat out, differences forgotten, boredom forgotten. Suddenly these people are fully alive, full of energy.

It is the sense of being fully alive that fascinates. In *Under Ben Bulben*, Yeats wrote of coming alive when we have to fight:

> Know that when all words are said
> And a man is fighting mad,
> Something drops from eyes long blind,
> He completes his partial mind,
> For an instant stands at ease,
> Laughs aloud, his heart at peace. . . .

Wilson has devoted his life to finding out why we are not fully alive all the time, why we cannot achieve that other mode of consciousness more often than we do. He is fascinated by brain research, especially the cases—usually of epilepsy—in which

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the left and right hemispheres of the brain have been surgically severed. There is a long history of brain researchers trying to learn what mental functions reside in what part of the brain. It has never been completely mechanistic, because in too many cases patients have been able to recover some function even though the relevant part of the brain has been irreparably damaged. Some people today even speak of the brain as a hologram, in which every part contains every bit of the whole picture. But in recent years it has become useful and popular to distinguish between the left brain as the seat of language and analytical thinking: the "scientist"; and the right brain as the nonverbal, musical side: the "artist."

For Wilson the left brain is turned out to the external world and handles our day-to-day problems, while the right is turned inward toward our feelings and, most important, seems to control our energy supply. So for him that "other mode" of consciousness is a state "with a great deal more of the right brain in it than usual. Most of us achieve a certain practical balance between right and left for everyday purposes; and since one day is very much like another, we end by taking this balance for granted as a permanent and necessary state of affairs. It is nothing of the sort."

He sees our left brain as our consciousness, our ego, that gives us a worm's-eye view of the world. It is our left brain, he feels, that can see life as "oddly trivial and futile. This is because it lacks a dimension; in order to deal with the complexity of existence, the intellect reduces it to symbols, and symbols are 'flat.' " Our left brain gives us a sort of visual perspective: the objects closest to us look largest and most important. It is the right brain that gives us the bird's-eye view. It soars above the immediate and the trivial, so that distant realities become as real as the nearby. It provides an overall view of reality, the recognition of an immense pattern, a feeling of primal perception not filtered by our intellect.

Somehow it all sounds like being on drugs or having a mystical experience. The crucial difference is control. Wilson says he has learned, and that anyone can learn, to move into the other mode of consciousness at will and responsibly, without losing track of our obligations or even the time. It is simply a matter of

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having our left brain summon what it wants from the right brain.

"Our real problem," he says, "is that neurotic tendency of the left-ego to isolate itself from the powers of the right, and then to *forget* that those powers are at its disposal."

My intuition loves this whole idea so much that I feel certain there is something to it (a declaration which could win me the 1983 award for most unscientific statement of the year). The conclusions must be true even if the premises are wrong. I suspect the left-brain, right-brain distinction is not so sharp as Wilson makes it. When Roger W. Sperry shared the Nobel Prize in 1981 for his split-brain research, he called for caution: "The left-right dichotomy in cognitive mode is an idea with which it is very easy to run wild. Qualitative shifts in mental control may involve up-down, front-back, or various other organizational changes as well as left-right differences." He also points out that "the more we learn, the more we recognize the unique complexity of any one individual intellect."

It is not really the mechanical question of which hemisphere of the brain does what that concerns us here. If it were, in fact, Wilson's book would fail, because he moves from split-brain patients to multiple personalities to telepathy, clairvoyance and even spontaneous human combustion without differentiation. What does concern us is the idea that our conscious mind can control our powers of perception, our mental processes, our emotions. In his Nobel lecture (*Science*, September 24, 1982) Sperry says that "one of the more important indirect results of the split-brain work is a revised concept of the nature of consciousness and its fundamental relation to brain processing. . . . In effect . . . the mental forces of the conscious mind are restored to the brain of objective science from which they had long been excluded on materialist-behaviorist principles."

While I was writing this column, Cynthia Kirk at John Wiley & Sons, publishers, sent me a collection of predictions about the next 25 years made by some of their more illustrious authors. One came from Dr. Irving B. Weiner of the University of Denver, author of *Development of the Child, Clinical Methods in Psychology* and much more:

"Exciting current work on brain-behavior relationships suggests that most people tap only a small portion of their brainpower and that the human mind has capacities and resources of which we remain only dimly aware. . . . In the next generation . . . efforts to identify and ameliorate *negative* influences on mental capacity will be joined by increasingly more sophisticated and effective attempts to discover *positive* ways of bringing the products of the mind to higher levels than have previously been thought possible."

Will anything ever come of all this? I certainly don't know. I don't even know if it is philosophically possible for human consciousness to examine itself. If we cannot look at an electron without changing what it is doing, it would seem that there must be things about the mind we can never learn. At the very least, it is fun. These people, it seems to me, are talking about finding the secret of happiness. Wilson is excited, and so is Weiner. I know I am. And yet I wonder if we are getting ready to discover something my mother has known all her life.

John P. Wiley jr.

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By David Zimmerman

The mosquitoes are coming—and they are among Man's most lethal foes

Scientists have been trying to wipe out this disease-bearing insect for 80 years, but today it is more virulent than ever before

One afternoon late last summer, 13-year-old Jay Grimsled was building a fort with a friend in the wooded valley near his home in Seneca, Wisconsin, about 50 miles south of La Crosse. So engrossed were the youngsters in their play that they paid scant attention to the mosquitoes all around them and, as a result, both were badly bitten. A few days later Jay began behaving in a most unusual way: he was lethargic and unresponsive. Hospitalized with a 104-degree fever, he drifted in and out of consciousness for days. Eventually he went back home and recovered, but at first he still seemed confused and had trouble talking.

Jay had been severely ill with a mosquito-borne disease called La Crosse encephalitis. Many people think "mosquito diseases" occur only in the tropics, but La Crosse, where winter temperatures often plunge far below zero, happens to be the namesake of, and a hot spot for, the most commonly diagnosed mosquito-carried malady in the 50 states.

La Crosse encephalitis is an inflammation of the brain which can have permanently debilitating effects. It is caused by a virus transmitted to humans by *Aedes triseriatus* (right), known as the "tree-hole mosquito" because it breeds mainly in rain-filled tree cavities. The insect's generic name, *Aedes*, means odious; its species designation, *triseriatus*, describes the three stripes, two white and one black, on its thorax. It is a poor flyer, prefers woodlands, and tends to bite in the late afternoon rather than in the evening hours. It was Jay Grimsled's misfortune to have been bitten that afternoon in the woods by at least one *Aedes triseriatus* carrying the dangerous La Crosse virus.

Within the past 18 years, 357 other people in Wisconsin have been treated for the same disease, but it is by no means a strictly local phenomenon. Cases have been documented from Minnesota all the way across the upper Midwest to New York, and as far south as Georgia and Louisiana. Ohio usually has more cases each year (37 in 1982) than any other state.

Some researchers believe La Crosse encephalitis may be even more prevalent than medical reports suggest because many mild cases are probably discounted as "summer flu." Recently, a team of scientists at the University of Notre Dame's Vector Biology Laboratories in South Bend, Indiana, came up with some startling evidence to support that theory when they analyzed blood samples from 10,000 individuals all over the state. The results of their study indicate that almost seven percent of the state's population—more than a third of a million Hoosiers—may have been exposed to the La Crosse encephalitis virus or one of several other viral agents at some point in their lives.

Americans have always thought of mosquitoes as pests, not as serious threats to their health. But, over the centuries, mosquitoes have caused mankind more illness, misery and loss of life than all of history's rats and lice combined. What perplexes and alarms scientists today is the fact that, despite repeated attempts to subdue them, they are continuing to do their dirty work not only in such seemingly improbable places as La Crosse but also in temperate and tropical zones around the world.

According to health experts and researchers, three types of mosquito-borne diseases are out of control:

- Malaria, which is caused by a parasite called *Plas-*

Aedes triseriatus, a carrier of La Crosse encephalitis in North America, prepares to penetrate human hand.

Female *Aedes aegypti*, carrier of yellow and dengue fevers, emerges from her pupal case inside an old tire.

Photographs by Robert Noonan

Swamps like this one in Florida are superb mosquito habitat. Entomologist Phil Lounibos collects insects.

Lounibos removes water from another prime source of disease-bearing mosquitoes, rain-filled tree holes.

modium, threatens one billion persons each year and, the World Health Organization (WHO) reports, afflicts 200 million of them. Characterized by chills, fever and sweating, this disease is particularly deadly to young children. In Africa alone, it kills more than a million youngsters annually.

- Filariasis, a group of diseases that are widespread in South America, Africa and Asia, is produced by mosquito-borne filarial worms. The worms take up residence in the human lymphatic system and muscle tissues where, occasionally, they may trigger the massive swelling of limbs or other parts of the body commonly referred to as "elephantiasis." There are few defenses against filariasis, and some 250 million people are afflicted. Dog heartworm, a growing plague among American canine pets, is caused by a filarial worm.
- Viral diseases in the Western Hemisphere include dengue fever, yellow fever and various types of encephalitis. The mortality rate can be reduced; with plenty of rest and hospital care, many victims will recover, but there are no medical cures. The human toll is unknown and so, for that matter, is the number of diseases themselves. Many new ones have been identified; many additional identifications can be expected. Protective vaccines have been available only for yellow fever and a few others, although several are now being developed for the dengue fevers.

Reed and Gorgas had mosquitoes on the run

Scientists have been battling these ailments for decades and victory has sometimes seemed well within reach. The modern antimosquito war began back at the turn of the century when the famous U.S. Army pathologist Walter Reed investigated an outbreak of yellow fever among troops stationed in Cuba during the Spanish-American War. Using volunteers as guinea pigs, Reed confirmed an earlier thesis that the disease could be transmitted by a mosquito now known as *Aedes aegypti* (p. 28). Thereupon, Major William C. Gorgas, an Army surgeon and sanitary engineer, set about eliminating the mosquito's breeding habitats in Cuba and introducing the use of window screens and bed netting. After controlling *Aedes aegypti* there, Gorgas went on to all but eliminate yellow fever and malaria in Panama, paving the way for construction of the Panama Canal. Subsequently, both diseases were pronounced "eradicated" in some other parts of the tropics as well.

Gradually, though, as impoverished human populations exploded and previously undeveloped regions were settled, the methods Gorgas used were neglected. The diseases staged a frightful comeback. After World War II, WHO and other groups mounted another sustained drive against disease-bearing mosquitoes in

Tire dumps are prime mosquito-breeding grounds, as Lounibos and Alan Curtis (right) can plainly see.

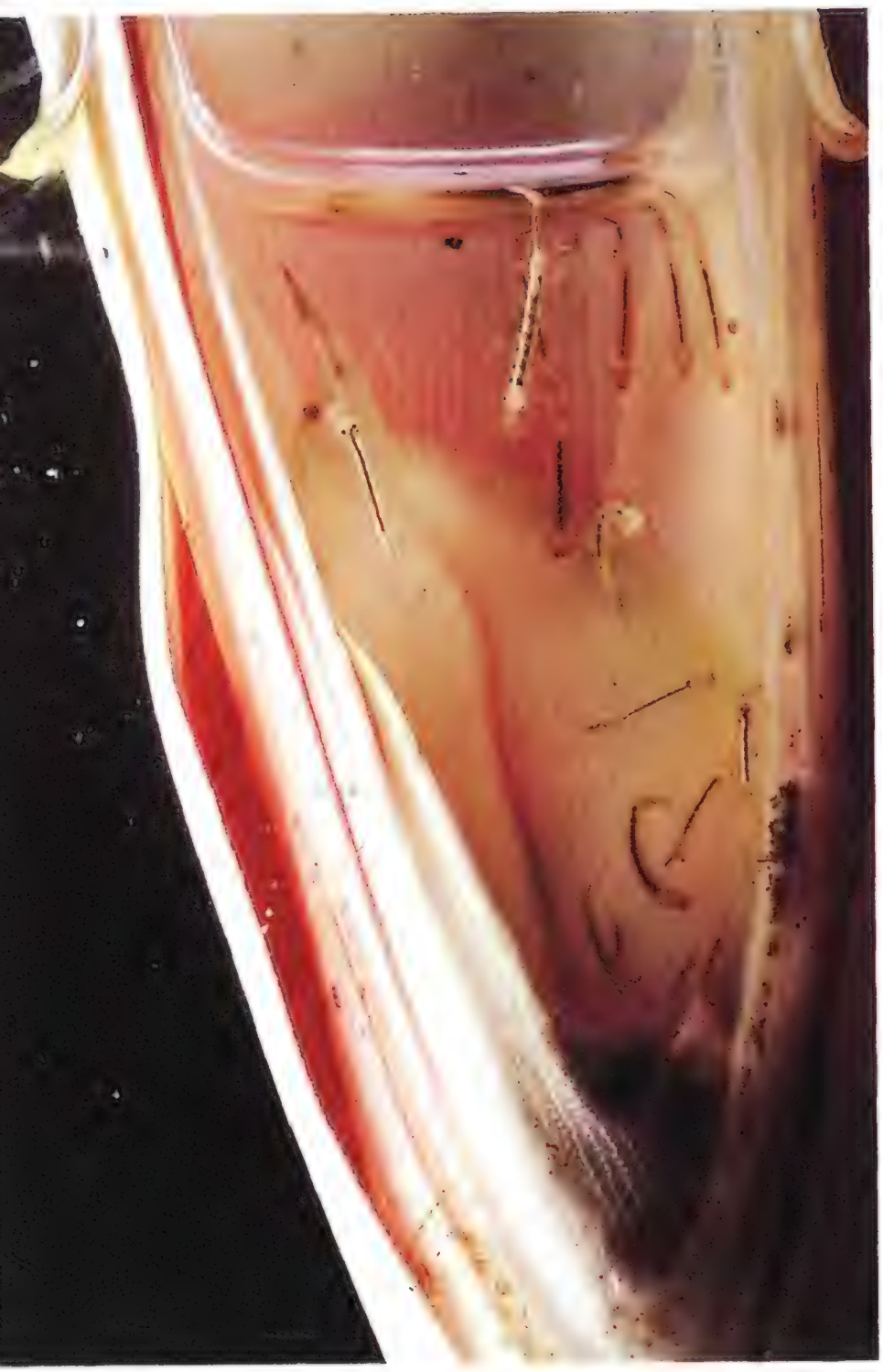
the Third World. This time, a potent new chemical "superweapon" was used: DDT. Applied on (and in) dwellings, DDT eliminated malaria-carrying mosquitoes. In due course, malaria, dengue fever and other diseases were again declared "under control" in many parts of the world.

Now, after all of that, the mosquito is back in business. In some areas of the globe it is even more dangerous and widespread than ever before. How can this be? For one thing, the health organizations oversold what they had done. What is more, the diseases and their agents are far more complicated and resilient than scientists previously suspected. Many mosquito populations developed a resistance to DDT, rendering the substance useless for malaria control in certain areas. In some ways, moreover, Man is the mosquito's best friend as well as its chief victim. Researchers have long appreciated how many routine human activities (carelessly discarding used auto tires, for example) and major environmental disruptions (such as the impounding of water behind dams) foster the very conditions upon which the enemy thrives.

Part of the difficulty in gaining and maintaining the upper hand is the sheer number and variety of mosquitoes to be reckoned with. The Earth probably contains more than 4,000 species, all of which, technically, are biting flies of the family Culicidae. As many as 400 to 500 may be involved in the transmission of disease to humans. Whereas *Aedes triseriatus* is the chief transmitter of La Crosse encephalitis in the upper Midwest, another mosquito named *Culex nigripalpus* (p. 37) is a prime encephalitis carrier in Florida, and a third species, *Mansonia dyari* (p. 33), is an important vector in Panama. Even the common southern U.S. household mosquito, *Culex quinquefasciatus,* is a potential carrier of both encephalitis and dog heartworm. *Aedes aegypti* continues to spread yellow fever in tropical South America and recently carried dengue fever as far north as Texas. In Africa, a complex of species known as *Anopheles gambiae* are the principal vectors of malaria. Some mosquitoes, like species of *Wyeomyia* (p. 32) in Florida, have not been linked

Mr. Zimmerman, author of The Essential Guide to Nonprescription Drugs, *has written articles for* SMITHSONIAN *on whooping cranes and bird migrations.*

The mosquitoes are coming



Cross-section of a bromeliad plant reveals, in the fluid, *Wyeomyia* larvae and the organic debris they eat.

with any disease, but that does not necessarily mean they are innocent.

Several of the ailments transported by these insects cannot be prevented. Therefore, the vector biologists who specialize in disease control must focus on the events leading up to "the bite"—that sometimes annoying but often unnoticed moment when the female mosquito partakes of a blood meal. Both male and female mosquitoes obtain some nutrition from plant sap and flower nectar, but the females of most species need an extra protein boost in order to produce and lay their eggs. The problem is not the bite per se, but the tiny parasitic organisms—the viruses, protozoa and worms—that the female ferries from one animal host to the next. Deposited in or near a puncture wound in the skin, these disease agents enter the blood and may travel to various parts of the body where they undergo complex patterns of development.

The vector biologist studies the chain of disease transmission in hopes of finding a weak link where that chain can be broken. Such studies are not easy because these chains vary from disease to disease, and from place to place. They are, what is more, inherently complex, since the life cycles of three or four organisms may be tied into each chain, and some of these organisms go through several life stages. Mosquitoes, for example, pass through egg, larval and pupal stages in water before emerging into the air as adults (opposite). The viruses and other parasites they carry may have even more elaborate life cycles.

One of the shortest disease chains is that of dengue fever. The hallmarks of this disease are severe sweats, chills, aches and pains, which have earned its acute phase the nickname "breakbone fever." The severe emotional and mental depression that often occurs during convalescence has led dengue also to be called "break-heart fever."

Dengue fever—a stowaway from Africa

The dengue virus and its principal vector, *Aedes aegypti*, probably reached the New World by stowing away on ships from Africa. A handsome insect, with a white lyre-shaped pattern on its thorax, *Aedes aegypti* is a close camp follower of Man. In the Americas it breeds in water-filled containers near human dwellings and is very likely to fly indoors in quest of blood. Biologists believe that in the United States the common practice of using screens on doors and windows serves to limit dengue's spread. In many nearby West Indian nations, where houses usually remain unscreened, dengue is widespread.

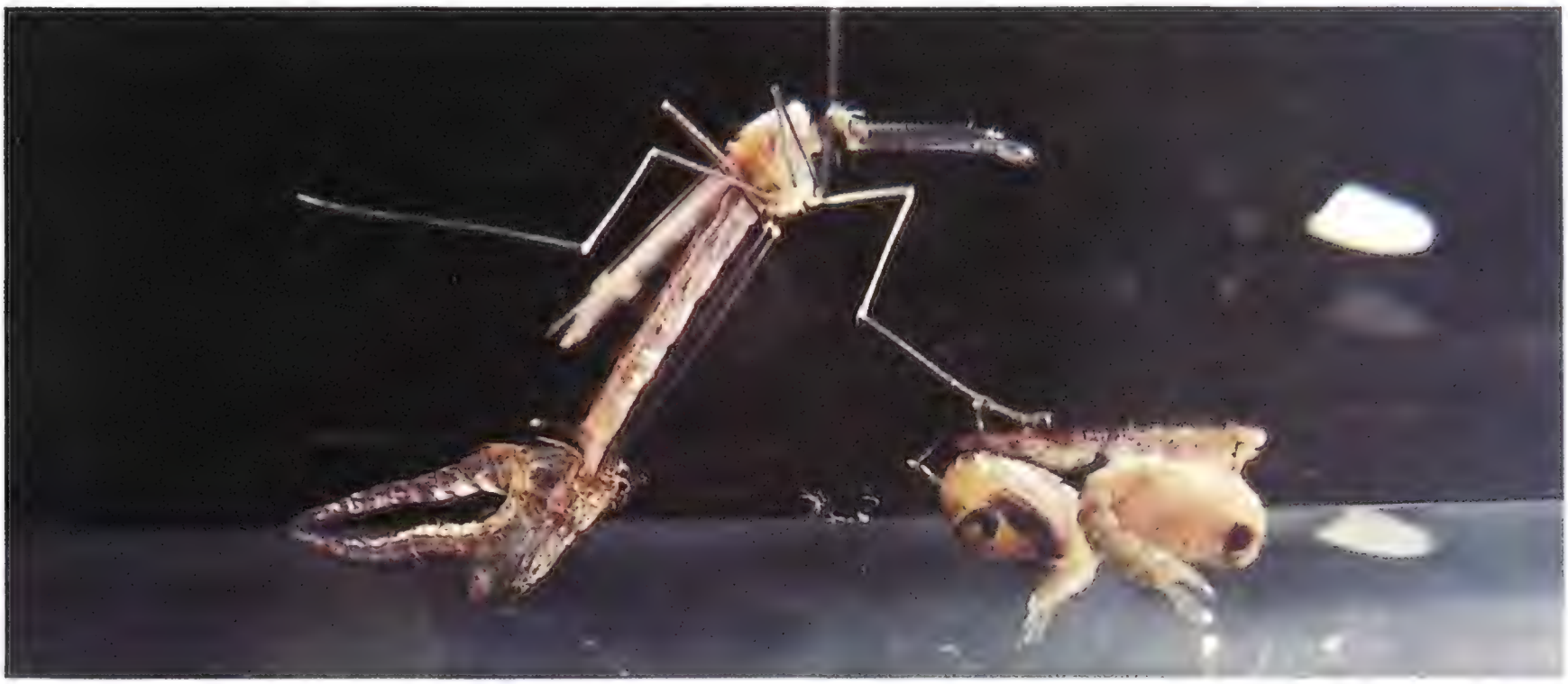
The *Aedes aegypti* female usually becomes dangerous only after she mates, takes blood from an acutely ill dengue victim, lays eggs, rests a few days and then

seeks additional blood meals to help her produce more eggs. Probably no more than one mosquito in 20 survives slaps, swats, sprays, hungry birds and other dangers, to sup again upon blood—at which time some virus may be transmitted to a subsequent host. In this scenario, the disease chain carries the virus in a perfectly straightforward way.

Many mosquito-borne viral-disease chains are not so simple. The reason: Man is only an occasional or fortuitous host—an unusual link in a disease chain that normally is confined to mosquitoes and wild or domestic animals. The creatures involved in the La Crosse-encephalitis chain in western Wisconsin, for example, were at first thought to be chipmunks and gray squirrels. But recent studies there by Terry E. Amundson, a wildlife-disease specialist with the Wisconsin Department of Natural Resources in Madison, point to chipmunks and foxes. Amundson and his staff trapped more than 100 foxes, of which a high proportion were found to have antibodies to the La Crosse virus in

Life cycle starts anew as a *Mansonia dyari* deposits her eggs on the underside of a water-lettuce leaf.

The next stages show *Mansonia* larva and pupa (top). Both use their pointed breathing tubes to "park."



At the end of its metamorphosis, an adult *Anopheles* emerges from the pupal case near two other pupae.

their plasma. That meant they had been infected by it.

When a person or animal is bitten by a virus-laden mosquito, the victim is infectious only for several days. According to the simplistic and once-standard view, a few of the viruses must be moved onward to a new host within those few days if the viral line is to survive year round. But in La Crosse, the first frost delays mosquito activity until the following spring, when the eggs laid in tree cavities and other water containers hatch out. Why is it that winter doesn't break the viral-disease chain?

The answer thus far is only partly known, but research findings to date have already forced a painful reassessment of some key vector-biology beliefs. The La Crosse data, now confirmed for other diseases elsewhere, show that mosquitoes do not transmit the virus only to Man, foxes, chipmunks and other mammals. They also transmit it directly to other mosquitoes.

This discovery was made by Somsak Pantuwatana and Douglas M. Watts at the University of Wisconsin, Madison, who found that some newly emerged adult *Aedes triseriatus* mosquitoes, which had yet to take their first blood meals, were already infected by the La Crosse virus. The viruses, it turns out, are able to travel from an adult female's stomach into her reproductive tract, where they are incorporated into her eggs. They survive the winter there, dormant in the egg reservoir, and revive after the eggs hatch into larvae the following spring.

This direct passage of the virus from one mosquito generation to the next, called transovarial transmission, is of profound concern to vector biologists. Female mosquitoes infected from birth in this way appear able to transmit the virus to the very first animal or human that they bite. What this does is to increase greatly the chances that any given mosquito bite will be dangerous.

Insecticide spraying will not always work, but in Florida it does help control mosquitoes in salt marshes.

But the La Crosse virus has evolved two other travel methods that may intensify even further its risk to Man. Male mosquitoes infected transovarially by their mothers can transmit the virus to uninfected females in their seminal fluid when they mate. La Crosse virus infection thus is a venereal disease in mosquitoes. And soon after Amundson, in an experiment, fed virus-infected chipmunks to uninfected foxes, signs of the virus appeared in the foxes' blood. That meant La Crosse virus also may be transmitted directly from prey to predator, bypassing the mosquito altogether.

These and other recent discoveries demonstrate that what was once assumed to be a simple, perhaps easily breakable, chain of disease, is in fact a bewilderingly intricate network of transmission routes. Detours that

are built into it appear capable of carrying the virus around many of the roadblocks that might otherwise be expected to stop them.

In La Crosse and in a few other communities, it might be possible to reduce transmission of encephalitis by *Aedes triseriatus* through filling tree holes with cement. Tree holes (p. 30), unfortunately, are turning out to be only part of the problem. Mosquitoes also breed readily in some wholly man-made containers. A number of dangerous vector species like *Aedes aegypti* are fond of old, rain-filled tires, and the steel-belted variety poses a serious problem in the United States. Ordinary rubber tires are easily cut up and recycled into rubber gaskets, washers and sandals, but the steel-belted types resist cutting. Disposing of them whole is tough, too; because they "float" upward and disrupt the surface of dumps in which they are deposited, landfill operators are reluctant to accept them. The result is that most steel-belted tires are simply tossed out behind the gas station, farmhouse or barn—where they quickly collect rain and attract mosquitoes. The Environmental Protection Agency estimates that about 240 million passenger or truck tires are chucked out onto the American landscape each year.

Each tire can nurture a horde of mosquitoes. One Ohio researcher captured and counted some 5,000 adult *Aedes triseriatus* mosquitoes rising from a single old tire picked up near the home of a La Crosse encephalitis victim. Many of the insects had been transovarially infected with the virus.

Recycling tires, a way to reduce risks

Discarded tires (p. 31) present a far more dangerous disease threat in the South, where *Aedes aegypti* reigns and where dengue fever was rampant until the 1940s. At the moment, this species is not transmitting much dengue on the mainland, but in Puerto Rico and other West Indian islands it is an extremely active vector. An epidemic in Cuba two years ago hit 344,000 people and caused 158 deaths. Health officials and medical researchers in Florida, therefore, worry a lot about discarded tires; in the southern part of the state, they account for four out of five water containers in which *Aedes aegypti* are found to breed.

According to researchers L. Philip Lounibos (p. 30) and J. Howard Frank of the Florida Medical Entomology Laboratory in Vero Beach, there is a way to reduce this risk: develop recycling methods that will be rewarding enough to induce people who own and service motor vehicles to turn in old tires—and profitable enough to persuade recyclers to take them.

One available recycling method, Frank says, is to spray the tires with liquid nitrogen. The extreme cold renders them friable, so that they can be crushed for the recovery of steel threads and crumbly rubber particles. The particles can then be crushed and added to asphalt to produce road surfacing that lasts longer and provides better traction. This method, unfortunately, has not yet been shown to be cost-effective.

If Florida's peril principally is tires, in Caracas and many other Latin American communities it is cemeteries—and the way respect is paid to the dead. Biologists recently traced the origins of a dengue epidemic to Caracas' huge central cemetery. They found that bereaved Venezuelans place fresh flowers in water-filled pots on the graves; the pots are refreshed by watering and by seasonal rainfalls, which rot the flower stems. This nutrient-rich element is highly attractive to *Aedes aegypti* and other mosquitoes. The 186-acre

Huge, but not a biter, the adult *Toxorhynchites* can't take blood because it has a curve in its proboscis.

As a larva, though, *Toxorhynchites* preys on another mosquito larva (lower left) and helps reduce numbers.

cemetery contains 190,000 vases or pots that, researchers say, provide prime habitat for some 50 million mosquito larvae.

The dead might be honored with less risk to the living if artificial flowers were substituted for real ones. But mourning customs are difficult to change and cemetery administrators have failed to implement the recommendations of researchers that the flowerpots be filled with soil, covered or sprayed with insecticide.

Whether in old tires, huge irrigated fields, wastewater treatment pools or ornamental ponds, people are creating new mosquito-breeding habitats with reckless abandon. Epidemiologist William C. Reeves of the University of California, Berkeley, recalls that when he entered the vector-biology field 40 years ago, "little or no consideration was given to the health and environmental aspects of water-resources development. An extensive effort has been made to modify this attitude, but it still prevails in most of the world."

Some researchers are pursuing novel control methods that might be introduced at minimal cost and without requiring major social changes. One prospect that stirs their imagination is cannibalism: mosquitoes that eat one another. Biologists are particularly impressed by the ferocity of several tropical and temperate *Toxorhynchites* mosquitoes, which, as adults, are handsome, huge insects with inch-wide wingspans. Compared with an individual *Toxorhynchites*, an ordinary summertime "Jersey mosquito" looks like a puny weakling.

Crooked tube spares Man a painful jab

If adult *Toxorhynchites* mosquitoes sucked human blood they would be dreadful pests. But the proboscis —down-curved like a curlew's bill, rather than straight like that of blood-sucking mosquitoes—is adapted for reaching into flowers (left,above), not for sucking blood. As larvae, however, *Toxorhynchites* are ferocious predators upon the larvae of other invertebrates, including smaller mosquitoes. One *Toxorhynchites* larva may consume up to 400 larvae of *Aedes aegypti*, *Aedes triseriatus* or other mosquitoes. A mere three to four can clear out an entire tree hole, birdbath or tire that is infested by a vector species.

The great unanswered question is whether adults released into a new environment will lay enough eggs to significantly reduce populations of other mosquitoes. Studies are under way now in South Bend and New Orleans to find out.

Elsewhere, researchers are exploring other ways to sic mosquitoes on each other. Virologist Thomas P. Monath of the U.S. Centers for Disease Control in Fort Collins, Colorado, is trying to find out why dengue fever has not made its presence felt in the

southern United States except for a small outbreak in Brownsville, Texas, two years ago. *Aedes aegypti*, after all, is widespread throughout the region and dengue fever is thriving nearby. Scientists suspect the answer may well have something to do with the fact that different mosquito populations vary dramatically in their vector ability.

Fully half of the *Aedes aegypti* captured by researchers in Puerto Rico are susceptible to virus infection, whereas the susceptibility to dengue infection among *Aedes aegypti* in Brownsville is only five percent. Similarly, the intrepid Puerto Rican mosquitoes are much more effective transmitters of the virus than their relatively incompetent counterparts in Texas. The differences, Dr. Monath says, are genetic—which raises a couple of interesting possibilities.

One logical antivector strategy would be to introduce large numbers of Texas mosquitoes into areas like Puerto Rico. Theoretically, the inept newcomers would mate with and eventually undermine native populations. This guerrilla tactic has been tried out on an experimental basis and, sad to say, it did not work.

Another subversive possibility lies in isolating the gene or genes that render some mosquito populations ineffective as vectors of disease-causing organisms, and then introducing those genes into a virulent local population somewhere else. In the not-too-distant future, scientists using sophisticated genetic-engineering techniques may launch yet another massive drive against the world's disease-bearing mosquitoes. But don't count on it. Some researchers are already convinced that such efforts, though creative, are unrealistic and therefore a waste of time and money.

If there is, in all of this, a familiar echo of the past, so be it. In mankind's long and losing war against the mosquito, scientists have repeatedly ended up with more questions than answers. Human beings may be the most intelligent life form on Earth, but we are not yet smart enough to outwit the lowly mosquito. It is only a small consolation but, perhaps, in the absence of any new superweapons, the best personal outdoor protection for the time being is the generous application of an up-to-date pest repellent from the nearest sporting-goods store.

Mosquito fish closes in on larvae of *Culex nigripalpus*, which is a prime encephalitis transmitter in Florida.

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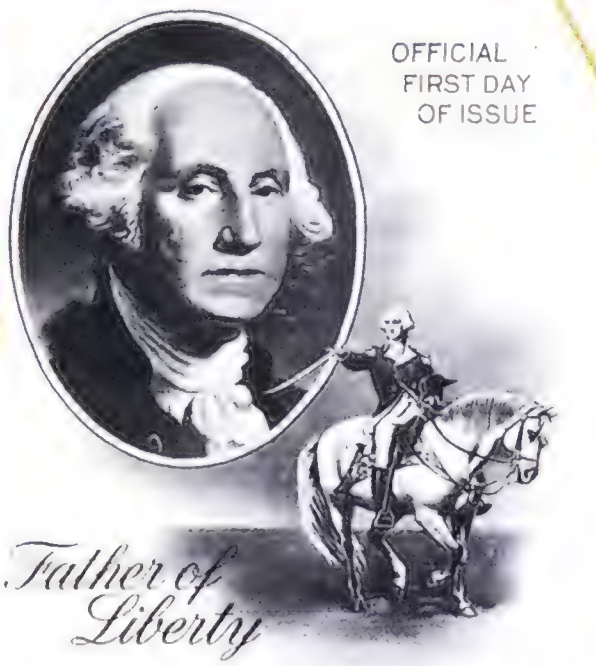

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By Gavin Souter

Bizarre folk hero still broods over the Australian bush

Ned Kelly, rebellious gunman with a gift of gab, hanged more than 100 years ago, lives in hearts—and arts—of his countrymen

In the slender pantheon of Australian culture heroes, one figure stands head and shoulders above the rest: Ned Kelly, a 19th-century bushranger who killed three policemen at Stringybark Creek; robbed two banks, at Euroa and Jerilderie; fought the police at Glenrowan in a suit of homemade armor; and in his 26th year was hanged by the neck until he was dead.

From such apparently inauspicious beginnings, the stature of Ned Kelly has grown apace. He had already taken hold of popular imagination during his own lifetime. In death he has engaged the creative arts to an extent equaled by no other Australian. Lacking any George Washington or Abe Lincoln because of her relatively peaceful internal history, Australia has had to cast about for popular heroes. Explorers Robert O'Hara Burke and William John Wills, aviator Charles Kingsford-Smith, middleweight boxer Les Darcy, balladist and horseman Breaker Morant, prima donna Nellie Melba—such Australians have been variously deified by their countrymen. But in posthumous fame Kelly has left them all for dead.

Joseph Furphy's novel of rural life, published in 1903 and still regarded as one of Australia's earliest classics, took for its title Ned Kelly's last sardonic words, *Such Is Life*. The first full-length feature film

In famous Sidney Nolan painting, Ned Kelly rides off into the countryside, clad in his homemade armor.

Revealing portrait of Kelly was made in November 1880, the day before he was hanged at age 26.

Bareknuckle "champ" of northern Victoria, Kelly, at 19, won a 20-rounder from Wild Wright.

produced in Australia (and possibly the first in the world, for it was completed in 1906) was *The Story of the Kelly Gang*. In the 1940s Douglas Stewart wrote the play *Ned Kelly* and Sidney Nolan began painting his enigmatic but haunting versions of the Kelly legend.

Sir Sidney (he was knighted in 1981) is Australia's most literary painter, past or present. Narrative painting was thought to have vanished from Australian art in the 1890s, but it made a startling reappearance in the series of 25 episodes from the life of Ned Kelly that Nolan painted between 1946 and 1948.

Then about 30, Nolan was one of several Melbourne figurative artists (including Albert Tucker and Arthur Boyd) preoccupied with the role of myth in art. "The history of Ned Kelly," he said, "possesses many advantages from this point of view. Most of us have heard of it, in one way or another, during our childhood. . . . It is a story arising out of the bush and ending in the bush." For Nolan's purposes Kelly was close at hand. His black and dented armor was on display at the Melbourne Aquarium. The Kelly country of northeastern Victoria is no great distance off.

Nolan's first Kelly pictures are colorful, lyrical, even witty. They were swiftly executed in a *faux-naïf* manner indebted, as Nolan puts it, to "Rousseau and sunlight." Against a remote, ragged landscape speckled with tree stumps, Nolan portrayed Kelly in a helmet-mask reduced to a black one-dimensional icon.

Sometimes, dark and superhuman, the helmet reared high over the Wombat Ranges; at other times it confronted the police in *High Noon* fashion, or was broodingly silhouetted against a blue sky.

Between 1954 and 1956, Nolan painted another Kelly series, and the dark-helmeted icon appeared intermittently in his later work. The precise meaning of Nolan's Kelly is anyone's guess. But the public took to him, and critics had no trouble labeling Kelly "an Homeric epic hero," "a joking saint," "Australia's Petrushka," or even "the prototype of the Australian's own idea about himself."

In 1970 another Kelly film was made, this one with Mick Jagger grotesquely miscast in the leading role (p.48). Lately, academic presses have published books about Kelly, among them a geohistorical study of the Kelly gang as an antipodean expression of "social banditry" (Dr. John McQuilton's *The Kelly Outbreak*). There seems no end to it. Even now a new opera about Kelly is in the works, eventually to be produced at Covent Garden in London.

It is clear enough why the murderer of Stringybark Creek originally struck a sympathetic chord among frontier Australians a century ago. But even today a cocky youngster, or an up-and-coming young boxer, is said to be "as game as Ned Kelly." And exactly why that chord has gone on reverberating into modern times is hard to say. The whole question, as Sidney Nolan once observed, is "a very complicated Australian thing."

Edward Kelly, as he was believed to have been baptized, was born in 1854 in the town of Beveridge, 25 miles north of Melbourne, capital of the colony of Victoria in the far southeastern corner of the Australian continent. To the north was New South Wales, and to the south, across Bass Strait, was Van Diemen's Land, a former penal colony that just before Kelly's birth became known as Tasmania.

Ned was the third child of John (Red) Kelly, a Catholic from County Tipperary, transported to Van Diemen's Land for seven years for stealing two pigs. Ned's mother, Ellen Kelly, had emigrated with her free parents (the family name was Quinn) from County Antrim. Already we have touched two notes in the Kelly chord—convict transportation and Ireland. In its early years, Australia was settled mainly by male and female convicts transported from the British Isles. As late as the 1840s a fifth of the population of New South Wales was still officially described as "convict."

About a third of the convicts sent to New South Wales and Van Diemen's Land came from Ireland. They brought with them all the old grievances and madness of the Anglo-Irish conflict, and added a few more in Australia. Red Kelly's grandfather had fought the British at Vinegar Hill in 1798. His son Ned was to inherit a full ration of Celtic and convict bitterness as naturally as he acquired, even in the Southern Hemisphere, an Irish brogue.

The bitterness rings like steel in two extraordinary documents left by Kelly—a 3,800-word apologia

Ned's sister Kate, in early photograph, looks formidable despite full feminine regalia.

In Nolan painting, Constable Fitzpatrick fondles Kate while Ned watches the scene from outside.

In Nolan's stylized shooting of lawman, Kelly holds a smoking rifle as Constable Scanlan flies from horse.

known as the Cameron Letter, written to a member of the Victoria Parliament while Kelly was holding up the town of Euroa; and a 7,400-word statement of defiance and self-justification known as the Jerilderie Letter. Kelly was unusual in that, although poorly educated, he could write articulately, if not always grammatically or with punctuation. Witness the following tirade (taken from the Jerilderie Letter) against those Irishmen in Australia who so forgot themselves as to join the Victoria police. He heaps scorn upon anyone so cowardly and greedy as "to serve under a flag and nation that has destroyed massacred and murdered their fore-fathers by the greatest torture as rolling them down hill in spiked barrels pulling their toe and finger nails and on the wheel and every torture imaginable."

Those not tortured, he continues, were "transported to Van Diemand's Land to pine their young lives away in starvation and misery among tyrants worse than the promised hell itself all of true blood bone and beauty, that was not murdered on their own soil, or had fled to America or other countries to bloom again another day were doomed to Port McQuarie Towering-abbie Norfolk island and Emu plains and in those places of tyrany and condemnation many a blooming Irishman rather than subdue to the Saxon yoke were flogged to death and bravely died in servile chains but true to the shamrock and a credit to Paddys land."

By the late 1860s, when Ned was approaching young manhood, the Kellys and the Quinns had moved into northeastern Victoria, a mountainous sheep-and-cattle region heavy with Irish settlers, where the original squatters (large landholders who had "squatted" on their properties without legal title) were making mockery of new government land-reform laws.

As elsewhere in Australia, it was a case of first in, first served. Those already established—with greater capital resources, better knowledge of the country, and teams of "dummy" applicants—were able to secure the best land in their districts. Despite the good intentions of legislators in Melbourne, about seven-eighths of the land officially opened for redistribution to poor settlers wound up in the hands of those who already had large holdings. This produced widespread rural poverty, seasonal migration by unsuccessful land-seekers who needed laboring jobs to stay alive, and a general belief that Australia had one law for the rich and another for the poor.

If squatters could take more than their fair share of land, the have-nots of the northeast reasoned, what was wrong with borrowing or lifting the squatters' stock? Such an attitude inevitably brought people like the Kellys and Quinns into conflict with local police, widely regarded as "squatters' men." This sense of injustice, associated as it was with the longer-standing grievances of the Irish and the natural turbulence of the colonial Outback, tells much about Ned Kelly.

Red Kelly died when the boy was 11. Only three years later, at age 14, Ned was acquitted of assaulting and robbing a Chinese pig-and-fowl dealer named Ah Fook, who deposed in evidence that the boy had said to him, "I'm a bushranger." This may have seemed no more than a young hooligan's make-believe, but by that time Ned was in fact associating with a genuine bushranger, the Irishman Harry Power, who lawlessly

Gavin Souter lives and works in Canberra. He is author of several books on Australian history and has had a longtime interest in Ned Kelly lore.

In the 1906 movie of attack on police, Kelly fires as Constable Fitzpatrick reaches for his gun.

lived off the land in a bush lair not far from Eleven Mile Creek, where the widowed Ellen Kelly and her brood of children eked out an unruly existence.

In his 16th year Ned was brought to court on another criminal charge, this time armed robbery in company with Power. Unlike his mentor, Ned was acquitted; but later the same year (1870) he was sentenced to three months for assault and three months for indecent behavior. He had struck someone who was rash enough to accuse him of stealing a strayed horse, and had rounded off the incident by sending the accuser's wife a parcel of calf's testicles, with a note suggesting that they might be of use to her husband.

In Ned's short lifetime, no fewer than 13 members of the clan chalked up a record of 71 arrests and 26 jail sentences. His mother had once been acquitted on the bizarre charge of "furious riding" in a public place, and the police regarded her shanty at Eleven Mile Creek as a thieves' kitchen.

In 1871 Ned was sentenced to three years' imprisonment for receiving a stolen horse. After release he worked as a sawmiller, tree feller, shearer, fencer and stockman, earning an honest enough living but always on the worst of terms with, as he put it, that "parcel of big ugly fat-necked wombat headed big bellied magpie legged narrow hipped splay-footed sons of Irish Bailiffs or english landlords which is better known as officers of Justice or Victorian Police."

To his sympathizers, who became more numerous as his notoriety increased, Kelly was a man of almost superhuman physical attributes. One policeman described him as "about six feet, dark complexioned, dark moustache, almond-shaped eyes, dark brown whiskers and hair. A raw bony man." At the age of 19 he became the unofficial bareknuckle champion of the Northeast by defeating a certain Wild Wright in a fight that lasted 20 rounds (p. 42). "While I had a pair of arms and bunch of fives at the end of them," Kelly boasted in the Jerilderie Letter, "they never failed to peg out anything they came in contact with." He was a crack shot with rifle and pistol, and one of the finest trick riders in the Northeast. If he was also an unrelenting foe of authority, that commended him still further to those who, although perhaps able to abide by the law themselves, nonetheless felt desperately at odds with it.

The police were understandably on their guard. Had not young Kelly once publicly boasted that he would peg police informers out "in an ant-bed with their bellies opened their fat taken out rendered and poured down their throat boiling hot"? In 1877 there was a terrible brawl in the town of Benalla when four policemen tried to arrest Ned for being drunk. He resisted all efforts to handcuff him. "When they could not," according to Ned's account, "[Constable Alexander] Fitzpatrick tried to choke me, and [Constable Thomas] Lonigan caught me by the privates." In agony and rage, Kelly was said to have roared: "If ever I shoot a man, Lonigan, you will be the first."

Heading for the Wombat Ranges

It was not this traumatic humiliation that finally tipped the balance of Kelly's uneasy relationship with society, however, but an incident at his mother's house the following year. In April 1878 Constable Fitzpatrick tried to arrest Ned's younger brother Dan at the family home without a warrant. By Fitzpatrick's own dubious account, Ellen Kelly hit him over the head with a shovel, and an unseen assailant—presumed to have been either Ned or Dan, though Ned always claimed he was in New South Wales at the time—fired three shots, one of which wounded the constable in the hand.

Ned's sister Kate later said that Fitzpatrick had in fact come to see *her*, and had caused trouble when she resisted his advances (p. 43). Whatever really happened, warrants were issued for the arrest of Ned and Dan on charges of attempted murder, and their mother, more easily apprehended, was tried and sentenced to three years in prison for aiding and abetting them. Ned, Dan and the other two young members of what became known as the Kelly gang—Joe Byrne and Steve Hart—rode off into the rugged Wombat Ranges.

And so we come to the first of four remarkable events that map Ned Kelly's progress to the scaffold: Stringybark Creek, Euroa, Jerilderie and Glenrowan.

In October 1878, four mounted policemen—Sgt.

In the grisly aftermath, the body of Kelly gang member Joe Byrne was fixed to police station door

Michael Kennedy and Constables Thomas Lonigan, Michael Scanlan and Thomas McIntyre, all Irishmen —rode out from the town of Mansfield into the Wombat Ranges on the trail of Kelly and camped beside Stringybark Creek. Kelly and his companions, good bushmen that they were, detected their pursuers before they themselves were seen. They noticed also that the police were better armed.

Aware of police threats to shoot first and call for surrender afterward, Kelly decided that the gang's only hope of escape lay in taking the policemen's firearms. "Had they been my own brothers," argued Kelly not very convincingly in the Cameron Letter, "I could not help shooting them or else lie down and let them shoot me." It was not enough for Kelly just to slip away unseen. In the Jerilderie Letter he wrote: "Those men came into the bush with the intention of scattering pieces of me and my brother all over the bush and yet they know and acknowledge I have been wronged and my mother and four or five men lagged innocent." The gang sneaked up on the lawmen and, in a brief, desperate fight Kelly himself killed three of them—Lonigan, Kennedy and Scanlan (p.44). Constable McIntyre was disarmed and permitted to return to Mansfield with the news that Kelly and his companions were now well and truly beyond the pale.

During the Glenrowan siege, a terrified hostage is allowed to escape from burning inn with her baby.

That November, the Kelly gang was officially outlawed. The next month it held up the Victoria town of Euroa, southwest of Benalla, and robbed the National Bank of £2,000. Two months later it did the same to Jerilderie across the border, taking £2,140 from the Bank of New South Wales. During the attack, the gang locked the town's police force in its own cells; Ned and Joe paraded down the main street in borrowed police uniforms, and Ned burned the bank's mortgage deeds, claiming (erroneously, of course) that he was thereby freeing debtors from the bank's clutches. He gave Jerilderie's schoolchildren a holiday, and enthralled a crowd in the bar of the Royal Mail Hotel by telling them the story of his life.

The popular response to Kelly at Jerilderie and elsewhere, and his burning of the mortgage deeds, support the proposition that Kelly, for all his criminality,

to be photographed and gawked at. Eventually one woman begged that "Joe Byrne be left in peace."

was an example of what the English sociologist E. J. Hobsbawm has called social banditry. He wrote that "the point about social bandits is that they are peasant outlaws whom the lord and state regard as criminals, but who remain within peasant society, and are considered by their people as heroes, as champions, avengers, fighters for justice."

Support for the gang, as historian John McQuilton argues, was rooted in inequitable division of rural resources. Those who felt legally cheated regarded Kelly as a hero. It never became a war of liberation, but there were some indications that in his primitive way Kelly may have been heading in that direction.

In 1880 Kelly devised a plan of attack involving the 160-mile stretch of railway from Melbourne to Wangaratta. First, Joe Byrne would shoot dead a former friend of the gang named Aaron Sherritt, who was known to have turned police informer. This would be enough, Kelly correctly reasoned, to bring a trainload of police from Melbourne. He and his gang would cut the railway line beyond the little town of Glenrowan, where a derailed train would be certain to roll downhill, and then simply wait with a crowd of local sympathizers for eventual disaster.

Sherritt was killed according to plan on Saturday, June 26, 1880. The rails were torn up after the last passenger train had passed through Glenrowan at 9 o'clock that night. The Kelly gang had occupied the town, and with them they brought four suits of crude but effective armor fashioned out of plow steel. Ned's armor, consisting of a cylindrical helmet with an eye slit, breastplate and skirt, weighed 97 pounds. It was proof against rifle and pistol bullets, but left his arms and legs unprotected.

The train was mysteriously delayed. From Saturday night to Sunday night there was drinking, singing and dancing at the Glenrowan Inn, and no sleep for any of the gang members as they caroused with sympathizers and hostages and listened for the sound of an approaching steam engine. Ned allowed some to go home. Late Sunday night the local schoolteacher, Thomas Curnow, got permission from Kelly to leave the inn. Once home, he took a red scarf, candle and matches and ran down the line to stop the police train when it appeared. It arrived at 3 A.M. and, after Curnow had told the police what was going on, steamed cautiously into Glenrowan station. The police approached the inn and opened fire. In the chilly dark Ned was heard to shout: "Fire away you bloody dogs!"

The details of this climactic siege are not fully known. As hostages and sympathizers made their escape, two children and an old man were shot. Soon, only the Kelly gang remained at the inn, guns flaming from windows and doorways. Joe Byrne was shot dead only seconds after he had poured himself a brandy at the bar. Ned, although wearing all his armor, had been shot in the foot and arm early in the siege.

Near dawn Ned managed to leave the inn and hobble away into the bush. According to local tradition in Kelly country, he kept a pre-arranged rendezvous with sympathizers who had been summoned to Glenrowan

At the climax of the Glenrowan fight, Nolan presents Kelly as a giant looming above the pygmy police.

In a 1970 film exploitation of the legend, rock star Mick Jagger played a limp-wristed Kelly.

with two signal rockets fired by his supporters when the train arrived. One rather grandiose legend has it that Kelly even planned to follow up the destruction of the police train by kidnapping the governor of Victoria and eventually establishing a northeast republic. If that indeed was contemplated, Kelly must have realized he was beaten when he sneaked out of Glenrowan. The story goes that he told the reinforcements the fight was all over and sent them home.

At about seven in the morning the huge, armored figure of Kelly, seeming almost supernatural in the early mist, emerged from the trees firing a Tranter pistol at the besiegers. Constable Arthur tried to shoot him through the eye slit, but succeeded only in bruising Kelly's face inside the helmet. It was Sergeant Steele who brought him down—with shots to the legs.

Dan Kelly and Steve Hart continued their resistance, but the inn was finally set on fire and their bodies were later found in the embers. Their leader was given time to recover from his wounds, then tried in Melbourne for the murder of Constable Lonigan, found guilty, and executed on November 11, 1880. Such was life.

Cut to the present day: it is a scorching midsummer's afternoon, with bushfire smoke rising high in the southern sky, and I am driving down the Hume Highway from Wangaratta to Glenrowan. The bitumen runs as straight as a gun barrel between bordering lines of stringybark trees, but near the horizon it dissolves into the shimmering apparition of heat mirage. This is Kelly country—more open than it was in Ned's day because the plain and the slopes of the distant Wombat Ranges have all been turned into grazing country, but full of ghosts nonetheless. As the poet Douglas Stewart wrote in his version of Ned's story:

> You would see, when you saw the Kellys, ghosts behind them,
> Ghosts in chains, ghosts being whipped, hanged,
> Ghosts in the mirror of every man's mind in Australia.

As my car rolls in to the service station at Glenrowan I am confronted by the statue of an armored and trigger-squeezing Ned. Farther up the road stand a Kelly souvenir shop (with Kelly teaspoons, place mats, tankards, tea towels, plastic helmets) and the Glenrowan Tourist Centre, behind which is a life-size but rather less than true-to-life tableau of the famous siege, including a reconstructed inn with *three* armored members of the Kelly gang out front, their guns blazing away.

Across the railway line—which, like the Hume Highway, is still a main channel of communication between Sydney and Melbourne—is the real site of the siege. Today the once bloody ground is partitioned by the fences of several private backyards. Just opposite, as

luck would have it, stands the present Glenrowan police station.

Part of Kelly's enduring fame is purely accidental. He was Irish, and that endeared him to Austral-Celts like Sidney Nolan. He was literate (more or less), and so could leave some account of himself for posterity. He had the good luck to wear a suit of armor that would posthumously mark him out from others of his kind (it is now displayed at the Old Melbourne Gaol Museum). He was also lucky that the Hume Highway eventually carried a stream of sightseeing motorists right past the bloodiest scene of his short, bloody life.

Kelly also remained steadfast in the face of insuperable odds. Australians cherish such courageous failures, like Burke and Wills who perished in the waterless waste of western Queensland, and the young Anzacs, trying to be "game as Ned Kelly," who fell on the Turkish peninsula of Gallipoli in 1915. And, win or lose, Kelly is linked to avenging antiauthoritarianism in the tradition of such ballads as *Jim Jones*:

> I'll kill the tyrants, one and all, and shoot the floggers down:
> I'll give the Law a little shock: remember what I say,
> They'll yet regret they sent Jim Jones in chains to Botany Bay.

The floggers are no longer with us, but what society is ever entirely free from real or fancied tyranny? Kelly is a comic-book hero suitable to the Antipodes—not defying the sheriff of Nottingham, or leaping skyscrapers like Superman, but tumbling police tyrants in the dust, burning mortgage deeds and vanishing like a will o' the wisp into the Wombat Ranges. There are plenty of Australians who believe Ned has already outdone Robin Hood.

Sidney Nolan's final vision was recorded in this 1969 painting. Ned Kelly has evolved into a mythical figure, as large as the Sphinx, that broods over a bare, lone house in an empty, miragelike landscape.

By Les Daly

In French caves, they live it up by living it down

In and around the lush Loire valley, more adventurous among the haute bourgeoisie *think that it's quite droll to dwell in a hole*

Inside, Victoria Renard relaxes between living room and bath (left). Her retired father's cave is nearby.

The general reputation of cave dwellers is none too good these days. Many people are inclined to think of them as prehistoric barbarians squinting out of their gloomy grottoes at a dangerous neighborhood, holding clubs in their hands and tending a small fire on the bare stone floor. In France, however, troglodyte living is not what it used to be—not in those parts of the République, at any rate, where the subterranean lifestyle is becoming curiously fashionable once again.

Consider, for example, Olga Cainer, a cave dweller in Rochecorbon. She has a canopied double bed in her silk moiré-walled cave bedroom and a six-foot round sunken tub in her cave bathroom. Her doorway opens to a living bouquet of forsythia and hollyhocks, tropical plants and cacti, thriving against a picture-postcard view of France's Loire River sliding slowly by, several hundred feet below. Simone and Michel Folscheid live in Vouvray, less than a mile away. In their cave, they have a sitting room, dining room and kitchen, and a 22-by-35-foot salon 15 feet high (p. 53) that is sometimes the setting for Mme. Folscheid's harpsichord and piano recitals. "The cave," she reflects happily, "has excellent acoustics."

Some of our earliest ancestors may have been musical enough to make the same kind of observation. A number of them had the good sense, moreover, to choose to inhabit the south and west of France, where many of their descendants still reside. The caverns and valleys in the area of Les Eyzies-de-Tayac in the Dordogne region are particularly rich in the remnants of primitive human existence (SMITHSONIAN, April 1983). Neanderthal man spent about 45,000 years there before becoming extinct, and the first evidence of Cro-Magnon man was found in a rock shelter in Les Eyzies in 1868. Here, too, in the famous cave at Lascaux, are the superb 13,000-year-old paintings of hunting expeditions which demonstrate that, artistically, at least, early Man was not so "primitive" after all.

"Despite popular terminology that refers to them as cavemen, those people were not established cave dwellers," says archaeologist James Sackett of the University of California at Los Angeles. "They were sometimes nomadic and generally lived out-of-doors, stopping in at mouths of caves and rock shelters only from time to time."

People probably started living in caves simply because it was a practical thing to do, especially where the sites were warm and dry. Correspondingly, one of the greatest concentrations of troglodyte communities still in existence today is in the balmy Mediterranean basin—in Spain, Italy and Turkey, and along the Mediterranean littoral of North Africa. Underground homes and temples are also found in India and China, and in many cases they have been continuously occupied for centuries.

An embowered grotto in village of Trôo is home for physician Laurent Renard, wife Victoria and children.

Photographs by Pierre Boulat

At home with the new French underground

In Rochecorbon on the River Loire, this grand facade conceals a comfortable complex of live-in caverns.

In France, not far from the cave homes of Mmes. Cainer and Folscheid, on the Loire and its tributaries—the rivers Vienne and Indre and Cher—French kings and noblemen of the 15th and 16th centuries set a completely different standard for better homes and gardens in the chateaus of Chenonceaux, Chambord, Amboise, Blois, Azay-le-Rideau—to name only a few. Those renowned monuments to architecture, avarice and not a little amorousness share a sort of geological genealogy with many of today's cave dwellings. Much of the soft, blond limestone that became the carved balustrades, archways and embracing stairways worn so elegantly by the chateaus came from the chalk cliffs along the Loire. As the slabs of tufa, as this stone is called, were cut from the cliffs 450 years ago to build the chateaus—and the dike along the Loire, and the towpath that made the river a commercial barge artery until the beginning of this century—caves were created where the stone had been. Long before that, peasants were already occupying artificial caves created by earlier quarriers. As soon as additional dwellings were created, new occupants moved in. Thus, for generations, did princes and peasants live side by side in the Loire valley, in homes built, in rather different styles, of the same lovely limestone.

The princes are long gone, of course, and most (though not all) of the peasants have managed to escape their caves for better housing elsewhere. But in one of those charming incongruities that make generalizing about the French so difficult, living in a cave, which for centuries has carried the stigma of poverty and peculiarity, is now anointed with a certain snobbism—like designer jeans. More and more wealthy, enterprising and sophisticated members of the contemporary bourgeoisie are deciding that it might be, well, *droll* to live in a cave. As a consequence, there has lately evolved what could be called a "cellars' market," since livable underground homes in good condition—those which offer, to begin with, a fireplace, a chimney and a sunny location—are much in demand.

Renewed French interest in caves is spurred by financial as well as fanciful reasons. The price of such a dwelling is still far less than that of a conventional house. Restoration and modernization are likely to be extensive and expensive, especially if electricity and plumbing must be installed, but upkeep tends to be rather minimal. "You never have to worry about putting up a new roof," says Dr. Philippe Dufour. An ear, nose and throat specialist in Tours, he lives with his wife and three children in a well-manicured dwelling composed of a series of adjacent caves etched neatly

Les Daly has written for SMITHSONIAN *on solar homes and panning for California gold. He has lived in Paris, Washington, Los Angeles—but never in a cave.*

Some 26 feet of earth overlies her sunken salon, but harpsichordist Simone Folscheid says acoustics excel.

into the base of a cliff. There is also a small chateau standing modestly against the rock at one side.

The most agreeable cave dwellings are those like the Dufours' in which a number of individual caves are found side by side, rather than one behind the other—extending deeper, darker and damper into the earth. The Dufour kitchen and dining room, for example, are in adjoining caves along the cliff face. Next is a shallow atrium, a tiny greenhouse cut into the stone, enclosed with glass and filled with tropical plants. A small sitting room is beside the atrium, leading to the family's *salle des collections*, which houses a number of pieces of delicate art and antiques, as well as sculpture and painting done by Mme. Dufour. The walls are whitewashed natural rock, rough and cool to the touch. Light flows into each cave through a wall of

Wide doorway and high windows brighten dining area in Philippe Dufour's tidy redoubt in Rochecorbon.

windows and a glass-paned door built into the cave opening. All the entries to the caves were enlarged by the Dufours to increase the light and ventilation (p. 53). In the adjacent chateau are a living room and the family bedrooms and bathrooms.

"Sleeping in a cave can sometimes be a problem," Dr. Dufour admits. "If you lie in your bed at night and think about 80 feet of rock over your head, you soon begin to wonder whether it is really solid. But of course," he adds hurriedly, "it has been here for centuries and it has never moved." The French have an onomatopoeic way of speaking, and one can hear the sound of boulders cracking when the good doctor speaks feelingly of the *roc* above him.

Like many modern cave dwellers, the Dufours did not set out to live underground; they more or less stumbled into the arrangement. In a process familiar to home buyers everywhere, the Dufours first found themselves attracted to the neighborhood, a quiet community on the right bank of the Loire and slightly upstream from Tours. They then picked out a chateau next to a cliff with a number of caves. It was located amid luscious gardens and trees, an easy 20-minute drive from the office. The couple originally intended to use their caves for storage and to build another house on the land. But the fragility of the underground caverns beneath the property, and the fact that the site is protected as a historic landmark, necessitated a change in their plans. "My neighbors tried to put in a swimming pool and found a Merovingian sarcophagus," Dufour explains.

Olga Cainer's experience was somewhat the same. She recalls that her husband "loved the site and the view and the idea of being so separate from our neighbors." The couple furnished, equipped and decorated their caves bit by bit. They recently added a glassed-in extension—a sun porch—across the front which serves to connect the individual cave rooms. The extension has an undulating, black, rounded shingle roof tucked into the rock over the doorway to the caves. It is a sight that at first glance suggests a house built by Walt Disney for Snow White. At second glance, it is even more surprising. Implanted in the roof of this "cottage" are three solar panels that provide hot water for the cave and its glamorous round bathtub.

Although Mme. Cainer owns what may be the only known solar-powered cave in the countryside, other underground homes are equally distinctive for reasons of their own. The André Couturiers' cave castle features an impressively carved stone facade anchored to the face of the cliff, and a three-story elevator inside. Palm trees, banana trees, mimosas, cyclamens and hydrangeas grow in tropical profusion from the mansion nearly to the bank of the Loire. The original cliff face was cut out in order to construct the house, and the rooms reach into the rock like fingers. Between the rooms there are natural walls one yard thick. The

Writer-historian Adey Horton lives 15 feet beneath cave of his daughter, Victoria Renard, in Trôo.

Horton's capacious wine cellar is as well stocked with dusty bottles as his library (above) is with books.

"Keep these lands free
from intruders."
Thus, the King's command centuries ago.
And once each year, men and women
of the Scottish Borders ride
the "marches," the boundaries of
their common lands.
If only to be on the safe side.
The good things in life
stay that way.

DEWAR'S
"White Label"
never varies.

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In a subterranean *boulangerie* at Cinais, Monique and Michel Pointreau bake 500 loaves every day.

In Villaines-les-Rochers, basket-maker Jean Rousseau works in a cave because the willow stays damp there.

entire structure is built atop five miles of winding caverns where a *négociant en vins* stores the celebrated Vouvray wine produced in this region. Just down the road, in fact, are the ruins of the abbey of Marmoutier. There, according to local lore, monks first learned the value of pruning when donkeys chewed up the leaves and shoots of their grape vines. The vines not only survived but produced an unprecedentedly large crop the next year.

Couturier, a retired metallurgical engineer, seems quietly amused by the incongruity of it all as he pushes the elevator button to rise slowly through the rock from his ground-floor study to the main rooms on the next floor. "It's fun, isn't it?" he asks, pointing out that a previous owner had installed it.

While a constant temperature—about 52 degrees F in winter and 55 in summer—is said to be a major advantage of most caves, a problem that dampens the fun for many cave dwellers is humidity. Sooner or later, most subterraneans install air-circulation systems. Some, like Mme. Cainer, build false walls within the cave room, leaving an air space for circulation. Dr. Dufour is installing an electric-powered ventilation system because, he says, "you have to keep the air circulating all the time or mildew builds up quickly." When the Dufours return from a vacation—after their caves have been closed up for a few weeks—there is perhaps an inch of mildew on the furniture.

Humidity does have its positive side. In the little community of Villaines-les-Rochers it is partly responsible for what, in other circumstances, might be called a cottage industry. This curious village, a few miles from the Renaissance chateau of Azay-le-Rideau, is the center of the region's basket-making craft because of the coincidence of hundreds of small, generally damp caves and a vast surrounding growth of willows. The moist air of the caves keeps the willow supple while

Born in a cave, restaurateur Charles Barrier stands before one in his hometown of Cinq-Mars-la-Pile.

Retired naval architect Michel Jollant (second from right) modeled his cave's terrace on a ship's bridge.

men like Jean Rousseau (opposite, below) sit quietly in their underground workshops artfully bending and weaving the slender lengths into baskets.

"We soak the willow and in here it generally stays damp for the three hours or so it takes me to make a basket to carry *baguettes*," Rousseau explains. He has been making baskets in this cave for nearly 60 years. The cave is about 20 feet deep and ten feet wide. In the gray atmosphere beneath the fluorescent lamp suspended from the ceiling, the artisan, with his gray hair and blue coveralls, seems a part of the rock. "Not many people make baskets in the caves anymore," he acknowledges, "but it is still the best way. In the winter, when it is cold, I make a fire. For me, the dampness is not too unpleasant and it is good for the willow."

Simone Folscheid found a tunnel that serves as a natural air-circulation duct running along the back of her cave. In addition, there are vents in the ceiling of the cave that carry air 25 feet to the surface. Once the cave is heated—and it is never less than 50 degrees F—it is relatively easy to maintain a constant temperature using the fireplaces or portable electric heaters. "I always wait for the room to heat up and stabilize before I tune my harpsichord," Mme. Folscheid says. She plays a few passages from Bach's *Well-Tempered Clavier*, and enthuses about the natural acoustics of her rock-walled concert hall. "We have high ceilings, so that we do not have the feeling of being claustrophobic. At the same time we have thick walls, so the sound from the other rooms is muffled. In here, you can lose a sense of time."

A cave owned by monks has plenty of soul

The Folscheids believe their place was at one time owned by Benedictine monks, and was altered for living between 1829 and 1859. "The rooms are large, the view is spectacular and the garden is extensive," Mme. Folscheid says, gesturing toward a 100-year-old wisteria that has reached out to embrace the entire face of the dwelling. "And what is more," she adds, "this place has a great deal of soul."

The "soul" of the cave owned by Michel and Monique Pointreau is a shiny stainless-steel electric oven that produces 500 loaves of bread a day (opposite, above). The Pointreaus operate the local *boulangerie* in tiny Cinais, southwest of Tours. Their oven is located deep in the heart of the cave, where they lived before they built a modern two-story home in what had been their cave dwelling's front yard.

Many other cave dwellers are similarly inclined to modify their underground holdings, sometimes at considerable effort and expense. Michel Jollant, a retired naval architect, invested more than $10,000 and four months in building a terrace like a ship's bridge (left)

in front of his 12-cave house near Tours. Simone Verdier and her working-class family acquired several caves near Montoire-sur-le-Loir 36 years ago. At that time, the caves were being used to house a grocery store, pigeons and a nut-oil crusher. Over the years, the Verdiers improved the interiors, rebuilt the exterior sidewalks, changed and added windows, and put on new shutters and doors. They now have five habitable rooms, with one big kitchen which they share with in-laws who live next door (right).

Englishman Adey Horton, a retired salesman who now writes about art history, occupies a labyrinth of caves in the ancient village of Trôo, overlooking the River Loir, which is not to be confused with the River Loire, some 25 miles away. In a series of caves 15 feet above him live his daughter Victoria and her husband, Laurent Renard—the village doctor of Trôo—and their children (pp. 50, 51). Horton first visited Trôo about 30 years ago. He bought his first two caves "for nothing" five years later, and has extended his holdings "bit by bit all under the hillside." He supports the notion that a good cave is hard to find. "Nearly everyone who comes down here for a few days asks where they can buy one," he says. "Hardly anyone does because it's very rare that you can find anything that you can turn into a proper house."

The list of requirements for a "proper" cave dwelling is long. It includes a southern exposure, low humidity, and some history of how the cave was formed or excavated in order to ascertain whether it is stable. "Prices for such caves," Horton emphasizes, drawing on a glass of local wine extracted from his dusty wine cave (p. 54), "have gone through the roof."

Out of the ground and into the stars

"I was born in a cave," announces restaurateur Charles Barrier, who still owns one but does not live in it. Barrier is recognized as one of the leading chefs of the entire Touraine region. His establishment in Tours, which bears his name, merits two stars in the *Guide Michelin*. It is richly appointed with heavy chandeliers, flocked wallpaper and giant mirrors—a breathtaking decorative leap from Barrier's humble origins in Cinq-Mars-la-Pile, just 11 miles downstream. "I was born a peasant and I wish to remain a peasant," he declares, without a glance at the crystal and the paintings around him. "I have the spirit, the courage, the faults of a peasant. In the cave where I was born there was an oven and a fireplace and a chimney, and the people who have it now broke it all up to make a central heating system!" Clearly, he is bothered.

He also resists the idea of paying big money to purchase caves for homes. "It is snobbism," Barrier (p. 57) snaps disparagingly, "only snobbism. It doesn't count for anything." Actually, as he knows full well, it counts for quite a lot. The recent bull market for livable caves has been a very good thing for sellers, including Charles Barrier. He relates with relish buying one cave for 150,000 francs and selling it some years later for "20 times that much." His own small cave near Vouvray is 59 feet deep. "I paid one million francs," he says, still speaking, as many Frenchmen do, in francs that were revaluated by 100 three presidents ago.

Underground neighbors: Simone Verdier (left) and her relatives occupy adjacent caves but share a kitchen.

Today a franc is worth almost 14 cents. "I could sell it now for 20 million."

Snobbish or not, the booming market for livable caves may someday prove even more valuable for scholars than it is for contemporary speculators like Barrier. Perhaps 50,000 years or so from now, archaeologists will tip their hats to Olga Cainer, the Dufours, the Couturiers and hundreds of other affluent French cave dwellers for making it possible to study one small but fascinating slice of 20th-century life. There is no reason why the rock of France will prove to be any less permanent a repository for modern-day artifacts than it was for those of Cro-Magnon man. But in the process of examining the cave dwellings of Vouvray and comparing them to the soaring chateau of nearby Chenonceaux, the archaeologists of the future will inevitably confront a vexing question: Which way *were* those strange folks headed?

The Keir Collection, London

By Thomas W. Lippman

Cultural heritage of Islam through fourteen centuries

From seventh-century Arabia a religion and a way of life spread far and wide, generating art and scientific inquiry

Leonard Linton Collection, New York

Muslim scientists perfected astrolabes, precompass navigational aids. This one dates from 1304.

The rich heritage of the Muslim peoples embraces almost 14 centuries of tumultuous history. It spans parts of three continents, and links societies of every race, economic condition and political orientation.

From its origin in seventh-century Arabia, Islam has spread across northern and western Africa, southeastern Europe, the Levant, central and southern Asia, China and Indonesia. Today the faith includes some 800 million people, the vast majority of them non-Arab. Illiterate herdsmen in the Sahel, sophisticated bankers and diplomats in Istanbul and Kuwait, revolutionary zealots in Iran, scientists in Pakistan, factory hands in Egypt, are connected in their diversity by the banner of the Prophet Muhammad.

In the history of Islam, great empires have come and gone, leaving rich literary and artistic legacies even as their political and military power evaporated. The caliphate of the Abbasids in Baghdad, the Mamluk rule in Egypt and Syria, the Safavid empire in Iran, the empires of the Mughals and Ottomans—all reached breathtaking levels of achievement in science, literature, art and architecture, creating brilliant and enduring monuments to their common faith.

"The Heritage of Islam," an exhibition of Muslim culture that has been touring the United States and will open at the Smithsonian's Museum of Natural History on June 2, is an ambitious and unorthodox attempt to capture the essence of those achievements. It contains some 250 dazzling examples of ceramics, illustrated manuscripts, calligraphy, scientific instruments, textiles, carvings, jewelry and coins by Muslim craftsmen, representing each century since Muhammad founded the faith, and most of the societies where it has taken root.

The pieces have been borrowed from museums and private collections in this country, Europe and the Middle East. By its nature the exhibition includes works and objects created in widely divergent times and places, so different in technique and esthetic approach that it is hard to perceive the common thread stitching them together. What is the link between textiles from 12th-century Spain, surgical instruments from ninth-century Egypt, ceramic tile from Samarkand, a mango-shaped jade box from India, and an abstract painting by a contemporary Turkish artist? The only framework that encloses all these pieces is the religion of their creators.

This might seem a flimsy device, providing no more rationale for the collection than would Christianity for works by Hieronymous Bosch, Bernini and Frank

Lyrical illustration of Muhammad's Night Journey is from 16th-century manuscript of Nizami's *Khamseh*.

Egyptian National Library

Winged figure of Virgo overlies a map of that constellation in a 17th-century Persian treatise.

Lloyd Wright. Yet the exhibition is so arranged as to provide a glimpse into the collective culture of the Muslims, and in this context it is possible to sense, if not actually see, certain dominant themes that Muslim arts and crafts have traditionally shared.

The pieces in the collection, supplemented by explanatory panels, models and photographs, are grouped so as to illustrate basic themes and techniques that can be found throughout Muslim history: the faith itself, with images and artifacts of the Prophet, the sacred shrines of Mecca, the holy book and the great mosques; the four elements of Islamic decoration (calligraphy, geometry, floral and vegetal patterns, and human and animal figures); science; literature; and art, the latter term encompassing ceramics, carvings, metalwork and paintings.

Naturally these elements overlap in many works. One item, for example, is an architectural panel decorated with what appears to be an abstract geometric design. The design, on closer inspection, turns out to be Arabic writing. And the writing turns out to be the *shahada*, the basic statement of Muslim belief: there is no God but Allah, and Muhammad is the messenger of God. This is the inscription emblazoned today on the flag of Saudi Arabia. It appears on many other works in the exhibition, illustrating the common legacy that links Muslim craftsmen of every time and place. Similarly, one of the outstanding pieces in the exhibition is an enameled glass mosque lamp from 14th-century Syria. Its purpose was, simply, to illuminate the interior of a mosque. But the lamp also bears an inscription which is, of course, from the Koran: "God is the light of the heavens and the earth. The likeness of His light is as a niche wherein is a lamp."

In the words of Eleanor Sims, curator of the exhibition, it is "concerned with the *things* that the peoples living in the Muslim world have made and built" in the course of their history. The words are from her text for the exhibition catalog. But it is part of the show's peculiar history that the catalog has never been published. Sims and the exhibition's sponsor, the National Committee to Honor the Fourteenth Centennial of Islam, admit with some frustration that they were unable to agree on what the catalog should say or what approach to the subject it should take. Perhaps the disagreement was inevitable in such an unorthodox undertaking, in which sponsor, lenders and curators had different ideas as to its purpose.

The sponsor, Islam Centennial Fourteen, is a nonprofit, voluntary organization of scholars, retired diplomats and business executives who are familiar with, and generally admirers of, the world of Islam. The "Fourteen" refers to the 14 centuries on the Islamic lunar calendar that have elapsed since the Hegira, Muhammad's flight from Mecca to Medina in A.D. 622, the event from which the Muslim calendar is dated.

The committee's objective is to increase American awareness and appreciation of Islam. Because the supporters include several major oil companies, construction firms with major Middle East contracts, and the King Faisal Foundation, the committee has taken great pains to stay out of politics and avoid being seen as a propaganda tool.

Having no basic collection of its own to serve as the core of the show, as an established museum or library would, "The Heritage of Islam" was wholly dependent on potential lenders, whose concerns about the purpose of the show and the safety of their own collections put some items out of reach.

"We were given a plan that we had to follow," cura-

Thomas W. Lippman covered the Middle East for the Washington Post *and is author of* Understanding Islam; an Introduction to the Moslem World.

tor Sims said in an interview. "We couldn't just go out and get the 250 finest works of Islamic art available in this country. The purpose was educational; the objects couldn't be just from the heartland of Islam or just up to the 18th century." To get what she did, Sims said, she used up a lot of the credits she had built up in years of professional dealings with others in her field.

Sims' training as an art historian was focused on Iran, and this may account for the selection of a large number of Persian works that are stylistically alien to Arab esthetics. The Shi'ite form of Islam that is the official religion of Iran is outside the mainstream faith practiced by the Sunnite majority. It is a more emotional and more personal faith, according more importance to individuals in the religious hierarchy. An illustration from a 16th-century Persian manuscript, reproduced in the show in a photographic enlargement, offers a good example of the differences (p. 60). The subject of the painting is Muhammad's Night Journey, the spiritual voyage in which the Prophet is believed to have ascended into the heavens from the hill where al-Aqsa mosque now stands.

Many of the traditional features of Islamic life are present in the picture: palm trees, desert, mosques, the Kaaba, groups of men and women segregated by sex. But there are also celestial beings who, as is often the case in Persian works, have Central Asian facial features, and diaphanous wings like those found on angels in European religious works. Most startling of all, to one accustomed to the Arabian approach to Islam, is that the Prophet himself is depicted, in white turban and green cloak, astride the steed he is believed to have ridden on his voyage (a statue of which is included in the show; below). Images of the Prophet are more common in Persian art than in the artistic traditions of the rest of the Islamic world. Muslims do not worship Muhammad, who was only human, not divine, and Arab artists have traditionally refrained from depicting him because no human being or animal can be an object of devotion. The government of India, sensitive to the feelings of its Muslim population, once suppressed an issue of *Time* magazine in which a woodcut of the Prophet was reproduced.

Eleanor Sims, as a history-of-art professional, is apologetic about the inclusion of exhibits that are not original works. But in the context of the purpose of the exhibition it was necessary, and the models and reproductions are among the most striking displays.

The Detroit Institute of Arts

Domed ivory inkwell with foliate decoration dates from 12th-13th centuries, was made in Syria or Egypt.

Berkeley Anthropology Museum

Imaginative 19th-century folk carving of Buraq, steed ridden by Muhammad, is from India or Ghana.

Egyptian National Library

Striking anatomical diagram of the human eye is in a 13th-century Egyptian medical manuscript.

U.S. National Library of Medicine

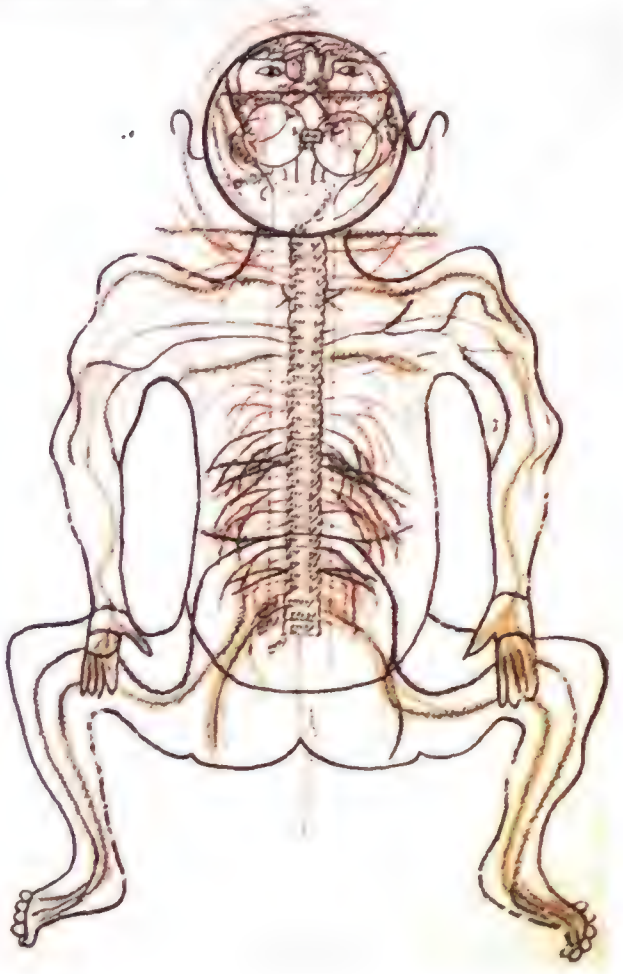

Exhibit contains photographic blowup of a diagram of the nervous system from 15th-century Iran.

They are not all effective—a photographic blowup of the ceiling of the Alhambra is more confusing than inspiring—but they do add to the informational value of the collection. If the originals were not available, it was appropriate to use reproductions, especially in the section devoted to the achievements of Muslim science. "Astronomers in the Observatory," an illustration reproduced from a Turkish manuscript, shows scientists working with astrolabes, quadrants, a globe and other tools of their trade. We would know less about the scope of their inquiry, and their technique, if the copy had been omitted.

The Arabian society into which Muhammad introduced his new faith in the seventh century was one of semiprimitive violence, ruled by tribal custom and the law of the vendetta. But within two centuries after his death, Islam had spread to include a vast array of peoples steeped in Greek, Jewish, Roman, Persian and Hindu thought. They adopted the Muslim religion; Muslim society absorbed their knowledge, so that at a time when Western Europe was lost in the Dark Ages, Baghdad and other Muslim cities were becoming centers of philosophical and scientific achievement.

The Koran encourages scholarly inquiry. It teaches that all nature is a manifestation of God, and that inquiry into natural phenomena, such as why the bee makes honey, will demonstrate the truth of Muhammad's message. Muslim scholars accepted the holy book's challenge, exploring the works of their Greek and Babylonian predecessors and synthesizing them with their own works into a highly sophisticated body of knowledge. In the words of Howard Turner, curator of the science portion of the exhibition, it was "the world's first truly international science," and when it was transmitted to Europe it "hastened the Renaissance, thus helping to generate scientific advance in our own time."

But Muslim science always retained a religious motivation. It assumed the truth of the Koran, and its objective was to understand the relationship between that truth and the observable world. The requirement that prayer be said at fixed times, and in the direction of the Kaaba in Mecca, stimulated research in astronomy and mathematics. In a similar way, discussion of such matters as the eternal nature of the Koran or the meaning of predestination inspired extensive philosophical analysis.

The work of the great Muslim philosophers is almost inaccessible except to specialists, but the scope of Muslim achievement in science—cosmology, mathematics, optics, astronomy, astrology, alchemy, natural history, medicine, geography and technology—can be sampled in this exhibition.

Among the most dramatic pieces is an anatomical diagram of the eye, from a 13th-century Egyptian medical text (above). The illustration reveals a sophisticated level of inquiry into the science of optics. More startling still is an anatomical drawing from a 15th-

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century copy of the great medical encyclopedia of Ibn Sina, also known as Avicenna. Ibn Sina, who died in 1037, left behind a treatise that was consulted as a basic medical text in the Muslim world and the West until the 19th century.

The drawing is an outline of a squatting human figure, showing digestive tract and internal organs. What is surprising, says Turner, is that the drawing clearly shows blood vessels carrying blood from the lungs to all parts of the body—a fact of physiology known to the Muslims 350 years before it was "discovered" by William Harvey.

Accompanying the medical exhibits is a plan of the hospital, mosque and tomb in Cairo of the 13th-century Mamluk sultan, Qalawun. It shows, in Turner's words, that "medieval Muslim hospital arrangements were remarkably advanced. Separate wards were provided for male and female patients. Special wards were maintained for surgical patients, the mentally ill, and patients with contagious diseases. Extensive training and pharmacological facilities were standard. All great hospitals played host to physicians who came from all parts of the Muslim world to function as resident administrators, specialists, and visiting educators." Again, the religious component was not omitted—could not have been omitted, since the purpose of the work was to fulfill the will of God. The hospital of Qalawun included a mosque, and others also included a *madrasa*, or religious school.

"The Heritage of Islam" also contains an important collection of astrolabes. The astrolabe, a kind of mechanical computer, was the basic instrument of navigation before the compass. Muslims did not invent the astrolabe but they refined and perfected it. One of the defects of the instrument was that it required a different base plate for each specific latitude, but Muslim scientists developed the universal astrolabe,

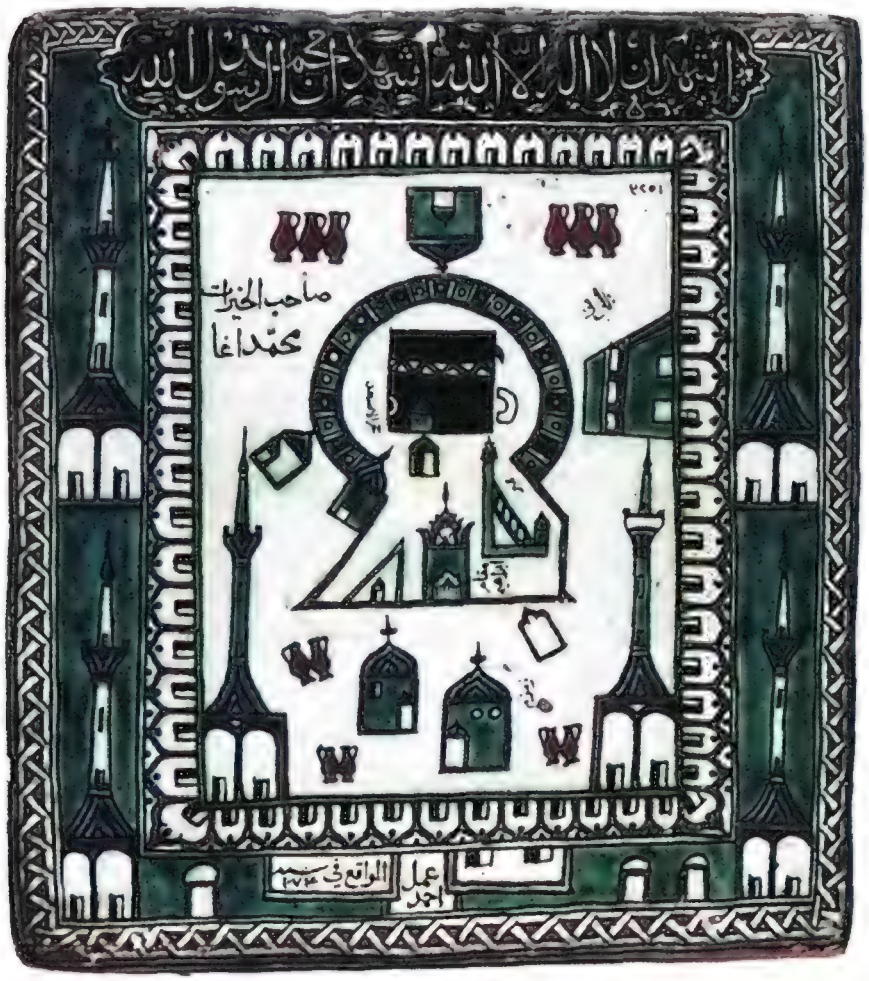
The Cleveland Museum of Art

A Persian 17th-century painting by the artist Shafi Abbasi is notable for meticulous design and precision.

Nelson-Atkins Museum of Art, Kansas City

Elegantly decorated bowl from Iranian province of Gurgan dates from the 12th-13th centuries.

Ceramic tiles like this, made in Turkey and dated 1663, were souvenirs of pilgrimages to Mecca.



which was accurate at any latitude without changing the base plate. In this exhibition of 14 astrolabes noteworthy for their craftsmanship and ornamentation, one is a universal astrolabe made in Syria in 1328.

To the Muslims of the classical era, there was no distinction between science and religion, just as there was no distinction between church and state. Islam was all-encompassing. In today's world, Muslim engineers will admit there is no such thing as Islamic steelmaking or Islamic avionics, but in earlier generations no fact of nature, no human activity, no vision or idea, was considered beyond the scope of Islam. All existed because God created it, and all achievement was a sign of God's greatness and compassion. Thus Islamic science included the analysis not only of observable phenomena but of extraterrestrial and supernatural forces. Examples of the resulting ventures into astrology and cosmology are included in the science section of the exhibition. One of the most striking is an illustration from a scientific encyclopedia written in Iran in the 13th century. It shows two types of celestial beings. One is a winged horse; the other is a humanlike creature wearing the large shoulder-blade wings often seen on angels in Renaissance Christian art.

Outside Iran and perhaps Mughal India, however, Islamic culture is less likely to be marked by depictions of winged beings with Central Asian facial features than by practical and religious artifacts elevated to the status of art by the skill and reverence of their makers. Of these, the show has an abundance.

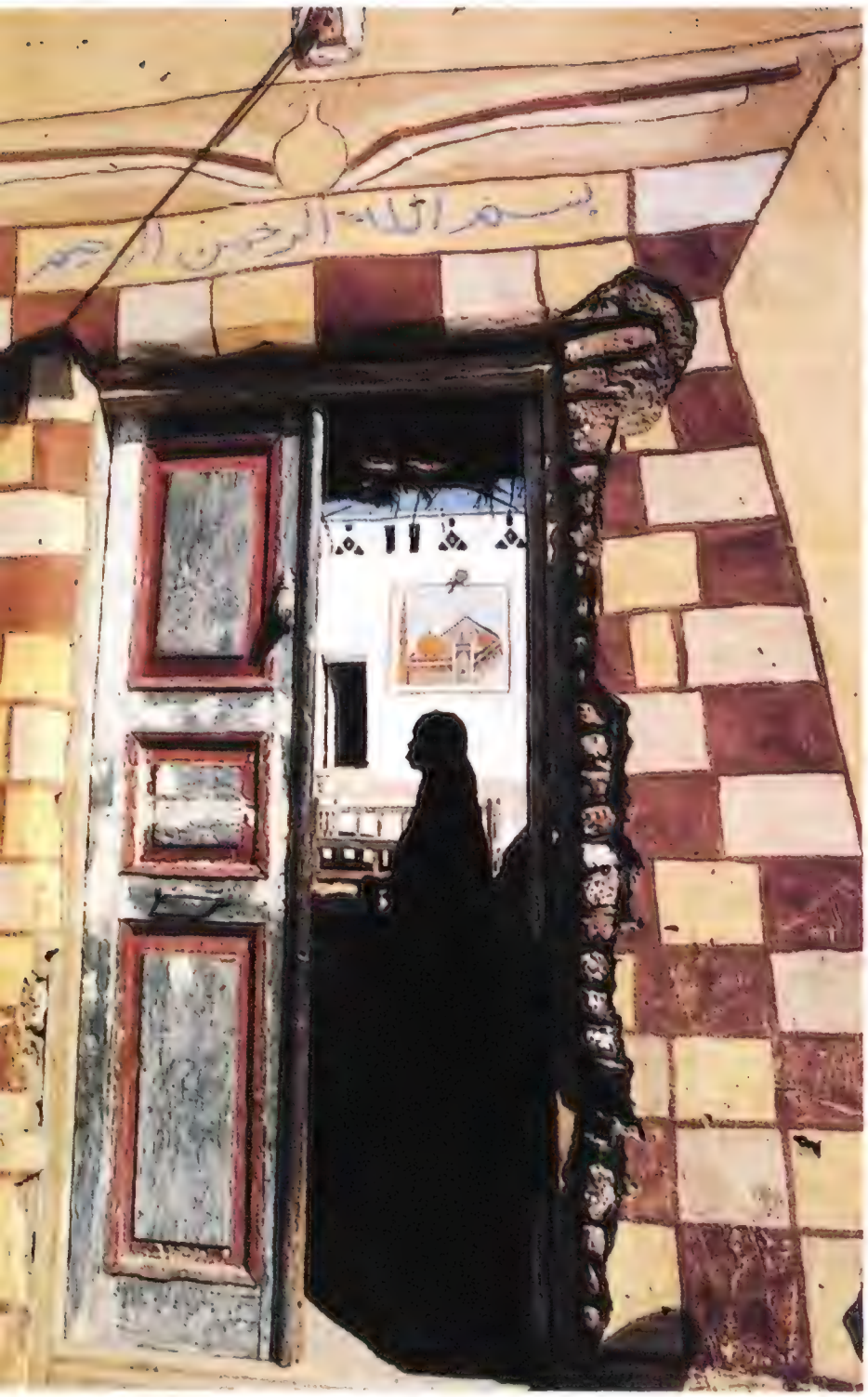
Many have specifically religious themes and images —representations of the Kaaba, inscriptions from the Koran, decorative motifs comprising quotations from the sayings of the Prophet. Some are little more than gadgets or knickknacks. Others have no specifically religious character, but rather are representative of the style and techniques of a particular place or time in Muslim history.

A maxim for greatness

One of the most beautiful of these is a white ceramic ewer, decorated with tiny spirals of blue flowers, from the Ottoman Empire in the 16th century, the zenith of Ottoman glory. The shape of this piece of "Golden Horn ware" is more often found in metal than in ceramic. There is nothing overtly religious about the decoration, but it is similar to decorations found on religious edicts and illuminated Korans of the same period, according to Eleanor Sims' catalog text.

One piece of particular artistic significance is a slip-painted ceramic bowl from 10th-century Iran, decorated with an Arabic inscription in the Kufic, or angular, script: "He who is sure of his greatness is content with his powers." This piece, on loan from the Avery

Museum of Islamic Art, Cairo



In Egyptian courtyard, a Muslim woman keeps the faith as she sits beneath picture of Mecca's Grand Mosque.

Brundage Collection of the Asian Art Museum of San Francisco, "demonstrates the austere Muslim taste, the use of Arabic as a decorative motif, and an esthetic appeal akin to the modern abstract style," Sims said.

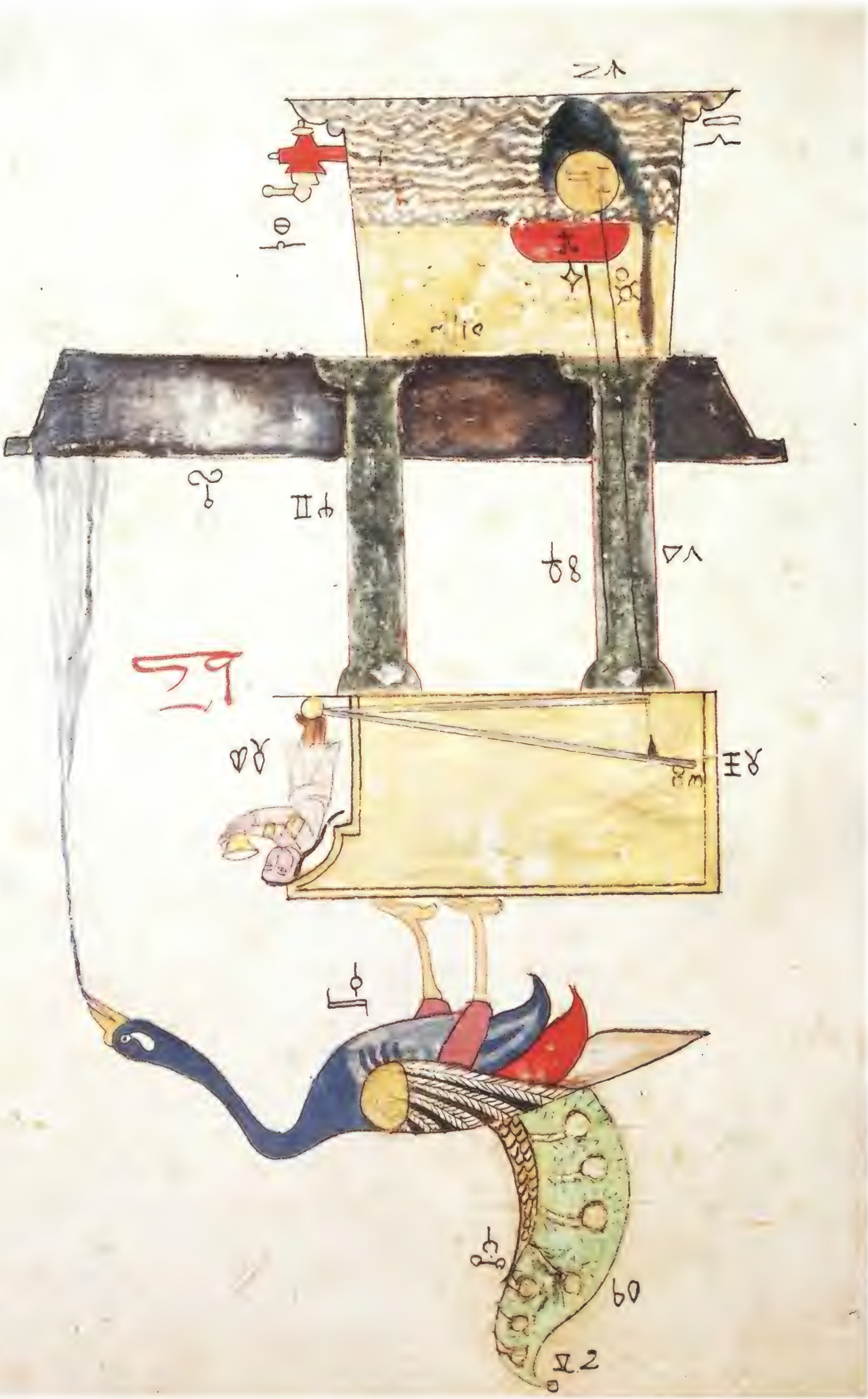
Another of her favorites is a ceramic bowl, also from Iran, that she called "one of the most splendid examples of the genre anywhere" (p. 66). It was made not of earthen clay but of an artificial ceramic material containing ground-up quartz, malleable clay and other elements combined into a base of unusual delicacy and brilliance. It is, Sims said, "a superb piece of Islamic art," showing not only the decorative skill but also the technical mastery of its creator.

For the visitor to the show who is perhaps less sophisticated about the techniques of ceramics, the greatest delights may lie in some of the less exalted, more mundane items: a shirt of chain mail, on which each steel link is stamped with the name of Allah, Muhammad or the Imam Husayn, an early leader of Shi'ism; a "saddle Koran," written in a North African script on loose leaves stacked in nested boxes, to protect the folios from the desert sands; an illustration of prancing stags from the medieval Persian treatise on "The Advantages Derived from Animals."

One item may be of special interest to those who see the show in Washington, where tourist-shop souvenirs are among the most tacky anywhere. A ceramic tile in this exhibition proves that souvenirs can be tasteful. It is a representation of the Kaaba, surrounded by minarets, made by one Ahmad al-Waqi on August 5, 1663, as a memento of the pilgrimage to Mecca by an Ottoman functionary (p. 67). It is graceful, charming and reverent, fitting evidence that its owner fulfilled the obligation to visit Mecca, a duty that Islam imposes on all believers.

Not the least of the show's virtues is that it is rigidly nonpolitical. Nothing in the exhibits or the texts has anything to do with the Iranian revolution, the war in the Persian Gulf, the fundamentalist revival, Libyan terrorism or the tragedy of Lebanon. The contemporary Muslim world is, unhappily, a world of violence and political upheaval; but so it has been, in varying degrees, since the 11th century. What endures in the Muslim world, as despots and factions come and go, is the centrality of the faith to life, and the devotion of the believers, the traditions of the Koran, the pilgrimage, and the intellectual quest that marked the great achievements of Muslim artists and scholars. "The Heritage of Islam" provides a tantalizing introduction to these traditions.

A fanciful Rube Goldberg-like diagram, probably 14th-century Egypt, is of a handwashing contraption.



Museum of Fine Arts, Boston

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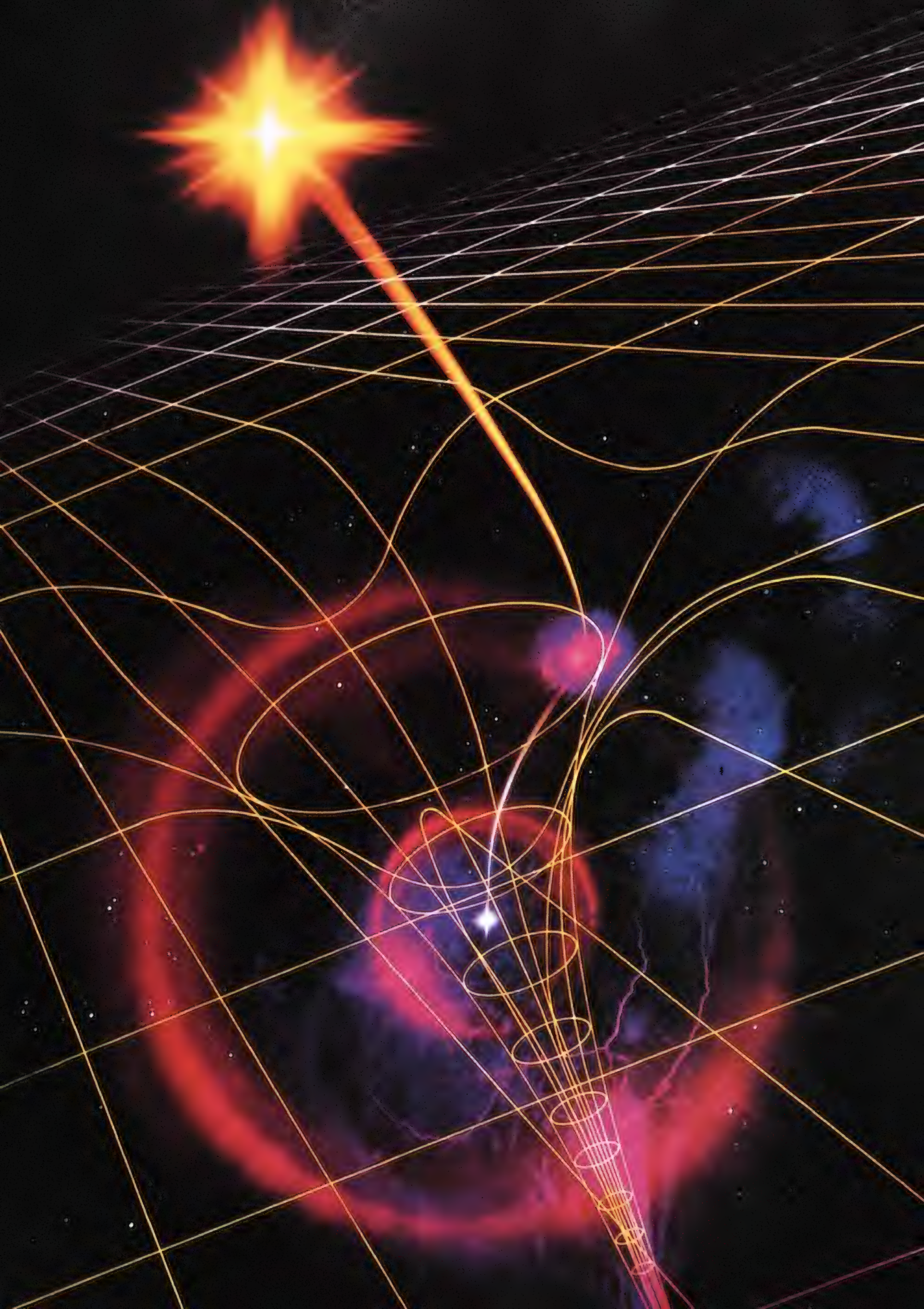


By James S. Trefil

Second of two parts

How the Universe will end

Within the mystery of the 'missing mass' lies the answer to whether the final act will close with fire or ice, a bang or a whimper

In most lines of work, it is far easier to know the past than to predict the future: ask any Monday-morning quarterback. But when it comes to talking about the ultimate fate of the Universe, the rule does not hold. Looking backward in time to the Big Bang, as we did last month in Part One of this series, involves the development of complex new theories about the behavior of matter in very unusual environments. Tracing the future of the Universe from the present onward is not nearly so hard; we do not need any new way of looking at the world. All that we really need to plot out our future are a few good measurements.

This does not mean that we can sit down today and outline the future course of the Universe with anything like certainty. There are still too many things we do not know about the way the Universe is put together. But we do know exactly what information we need to fill in our knowledge, and we have a pretty good idea of how to go about getting it.

Perhaps the best way to think of our present situation is to imagine a train coming into a switchyard. All of the switches are set before the train arrives, so that its path is completely determined. Some switches we can see, others we cannot. There is no ambiguity if we can see the setting of the switch: we can say with confidence that some possible futures will not materialize and others will. At the unseen switches, however, there is no such certainty. We know the train will take one of the tracks leading out, but we have no idea which one. The unseen switches are true decision points in the future, and what happens when we arrive at them determines the entire subsequent course of events.

In the distant future, a black hole at bottom of the funnel "evaporates" into radiation and particles (top).

When we think about the future of the Universe, we can see our "track" many billions of years into the future, but after that there are decision points to be dealt with and possible fates to consider. The goal of science is to reduce the ambiguity at the decision points and find the true road that will be followed.

Just as we have no trouble predicting the path of the train as it enters the switchyard, we have a pretty good idea about the short-term fate of the Universe. We expect that the galaxies will continue to separate and stars will continue to form and evolve for many billions of years. The Universe is now about 15 billion years old, and the Earth and sun a little less than five. In another five billion years the sun will have used up all the hydrogen it can. The sun will then swell monstrously into what astronomers call a "red giant," and the Earth will be swallowed up.

Ten billion years is a typical lifetime for a star the size of the sun; smaller stars, of which there are more, live longer. Depending chiefly on the mass of the star, the end product can be a white dwarf, a very dense star about the size of a planet (this will be the fate of the sun); a neutron star, an extremely dense object only a few miles across; or a black hole, an object with a gravitational field so strong that no light can escape. It might also self-destruct completely, returning its material to the galaxy. But whatever the end product of stellar evolution, each star uses up a certain amount of raw material. In 40 or 50 billion years, then, we expect that star formation will have slowed down considerably from what we see now. Stars will continue to go out: first the bright ones (which burn up their fuel most profligately, and therefore can die within a few million years), then more sedate stars like the sun. By this point in the future, our own galaxy may be a rather dull place, made up primarily of unspectacular stars much smaller than the sun.

Photographs by Michael Freeman

Fire or ice, a bang or a whimper?

The fringes of galaxies, such as that at center, move in a way that makes scientists think galaxies are often

Of course, when we talk of the future of the Universe, the fate of any single galaxy is not terribly important. Conversely, because other galaxies form a completely insignificant part of the spectacle of the night sky, what happens to distant galaxies will have little effect on what is observed from the Earth. Nevertheless, we do know that other galaxies are receding from us because of the Universe's expansion, and we believe that this expansion has been going on for roughly 15 billion years. It will surely continue to go on for comparable times into the future. The question that must be asked is whether the expansion will someday slow down and reverse itself, or whether it will continue forever. This question is the first (and most important) decision point we must face.

If a ball is thrown upward from the surface of the Earth, we know that eventually it will slow down, stop, and reverse its direction because of the gravitational attraction of the Earth. If the ball were thrown fast enough (more than about seven miles a second), however, we know that it would not fall back, but would sail off into space instead. Whether the ball will fall back to the ground, then, depends on two things: how fast it is moving and how hard the Earth is pulling on it. The force of gravity exerted by the Earth, in turn, depends on how much matter it contains.

We can think of the present expansion of the Universe in the same way. A given galaxy is now receding from us at a particular velocity, a velocity which we can measure. Whether it will ever stop and start falling back toward us depends on how much of a gravitational attraction the rest of the Universe exerts on it. If there is enough matter to exert a strong enough force, we can expect that the outward-rushing Universe will someday start to contract. If there is not enough matter, then the expansion may slow down, but it will never stop.

In the terminology of the cosmologists, a universe with enough matter to reverse the expansion is "closed," while a universe which has less than this critical amount is "open." (A universe with exactly the critical amount is also considered to be open and will end pretty much the same way.) The first decision point, then, is marked by the fundamental question: "Is the Universe open or closed?"

At first glance it might seem strange that we do not know enough to answer this fundamental question. After all, our telescopes are capable of detecting galaxies ten billion light years away (one light year is approximately six trillion miles). Why can't we just add up all the matter we see and have our answer?

A professor of physics at the University of Virginia, James Trefil is the author of several books. He wrote on the birth of the Universe in the May SMITHSONIAN.

embedded in a halo of "dark matter." If there is a lot of unseen matter, the Universe may implode someday.

It turns out that if we took all the stars and galaxies and spread their matter out uniformly through space, we would find about one hydrogen atom in a volume that could be carried by a dump truck. (This may seem like a very thin distribution of matter, but remember that there is a lot of just plain emptiness out there.) If we wanted to close the Universe, we would need a lot more than this: at least one to three atoms per cubic yard. If we count only the luminous matter we can see we have only a few percent of the amount needed to close the Universe. We seem forced to conclude that the Universe is open.

But this statement is premature, for it depends on the assumption that we can see all the matter there is. We know this is not always true. For example, someone looking at the solar system from another star would see the sun because it is luminous, but he probably would not see any of the other bodies we know are here: planets, asteroids, comets and so on. In the case of the solar system this is probably not too important, because all of these bodies add up to only a tiny fraction of the mass of the sun. But in looking at galaxies the situation may very well be different. It may be that a large percentage of the matter in a galaxy is not visible to someone looking at it through a telescope. If the matter we see does not close the Universe, then perhaps the matter we do not see will be enough to do the job.

Unseen matter in the galaxies?

At least two lines of evidence suggest that there might be a lot of matter, the existence of which we can deduce from its effects on other bodies. One line comes from studies of galaxies themselves, the other from studies of clusters of galaxies. Galaxies like the Milky Way and our neighbor Andromeda are shaped like spirals and rotate around their centers. The sun, for example, makes a grand circuit around the Milky Way every 200 million years or so. This rotation is complex, with different parts of the galaxy going around at different speeds. We are sure, however, that we understand the way matter should behave when it is at the outermost edges of the system. Just as the outer planets like Jupiter and Saturn move more slowly in their orbits than the Earth, so too should matter in the outer fringe of a galaxy exhibit gradual slowing down as the distance from the center increases. We say that the rotation should become Keplerian (named for Johannes Kepler, who discovered the true nature of planetary motion).

When we speak of the "outer fringes" of a galaxy in this context, we are talking about tenuous material, mostly hydrogen atoms, that does not emit light and is not visible to the naked eye or an optical telescope. It does, however, emit radio waves which allow us to detect its presence and determine its speed of rotation. Radio maps reveal that in most galaxies, this hydrogen gas is rotating faster than would be expected unless there were still more matter involved.

The only way this puzzling fact can be explained is to assume that there *is* still more matter (and therefore mass) in addition to the hydrogen that we can detect with our radio telescopes. Many galaxies, then, have an extensive halo of "invisible" matter (above), a halo which could very well contain even more material than the stars themselves.

What the galactic halos teach us is that we should not be too hasty in declaring the Universe to be open. Even though we can directly see only a small percentage of the matter required to reverse the Universal expansion, we believe there is a great deal of matter in the Universe that we cannot see. If we assume that most

In a contracting universe, the sky will brighten as stars and galaxies come closer together and the background radiation heats up to visible wavelengths. Life as we know it could not last in such a world.

galaxies have halos, then we should multiply the amount of visible matter by a number between two and ten to get a rough idea of how much mass is really out there. Of course, doing so does not get us to the critical amount of mass by a long shot, but this episode does make us wonder whether there are not other unseen masses waiting to be discovered.

Another candidate for unseen matter arises from studies of clusters of galaxies—concentrations that can contain a thousand or more galaxies. A few of these clusters seem to be in a kind of equilibrium. Think of adding hot water to a partially full bathtub. For a while the area where you add the water will be hotter than the rest of the tub, but eventually everything will even out and you will be left with a uniform temperature throughout. At this point we say that the water has reached what is known as thermal equilibrium.

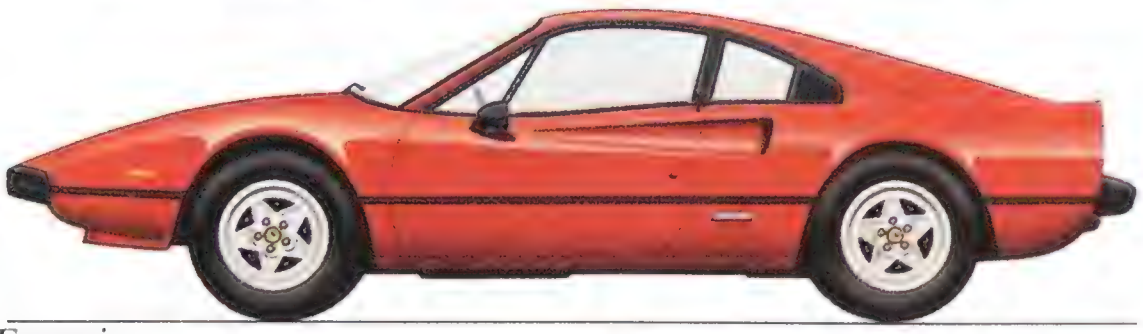
Now if you put your hand into a tub of water and found that the temperature was pretty evenly distributed, you would be justified in assuming that the water had been in the tub long enough for any initial unevenness in the temperature to be smoothed out. When astronomers look at clusters of galaxies, they see strong evidence that a different type of equilibrium has been established, leading them to conclude that the system has been together long enough for this to occur.

In a few spots in the Universe, such as the Coma cluster, we have the paradoxical situation that a cluster is in equilibrium even though it does not seem to contain enough visible mass to hold everything together. Adding mass for galactic halos and diffuse background light does not solve this problem (although it makes the discrepancy less acute). Conclusion: there is additional unseen mass in that cluster of galaxies. In Coma, for example, the actual mass of the system must be ten or 20 times that of the matter we observe in the galaxies. Adding this extra intergalactic mass to clusters still will not give us enough to close the Universe, but it brings us nearer.

A similar conclusion can be reached by looking at the Universe as it existed three minutes after the Big Bang, the time when nuclei were formed. By measuring abundances of light nuclei *now*, we can deduce the density of nuclear matter *then*. The result: if we count only nuclei, the Universe is open.

Such is the current state of our knowledge about the first decision point in the future of the Universe. The amount of luminous matter that we know about is not the amount needed to reverse the expansion, but we already have two sources of unseen additional mat-

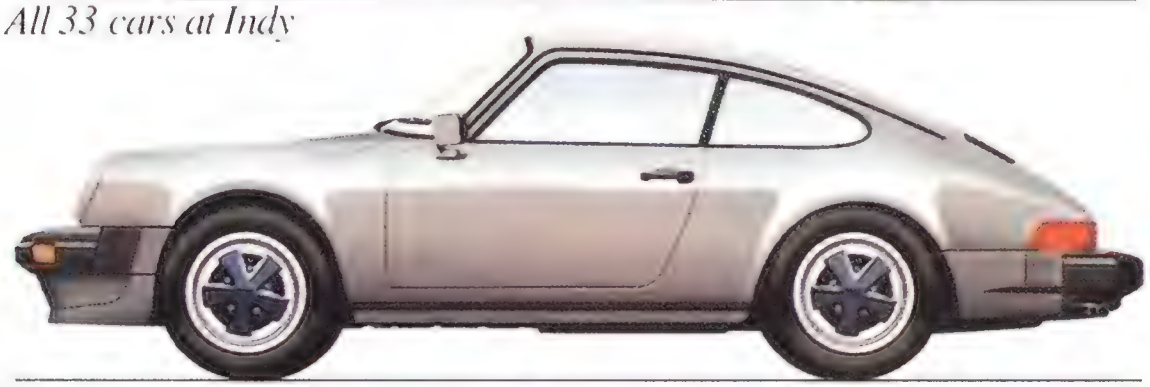
A FEW CAR MAKERS WHO STILL BELIEVE IN REAR WHEEL DRIVE:



Ferrari

Corvette

All 33 cars at Indy



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ter that were hitherto unexpected. Whether we will keep adding new unseen matter in bits and pieces until we achieve the critical amount or whether we now know about most of the matter in the Universe is an open question.

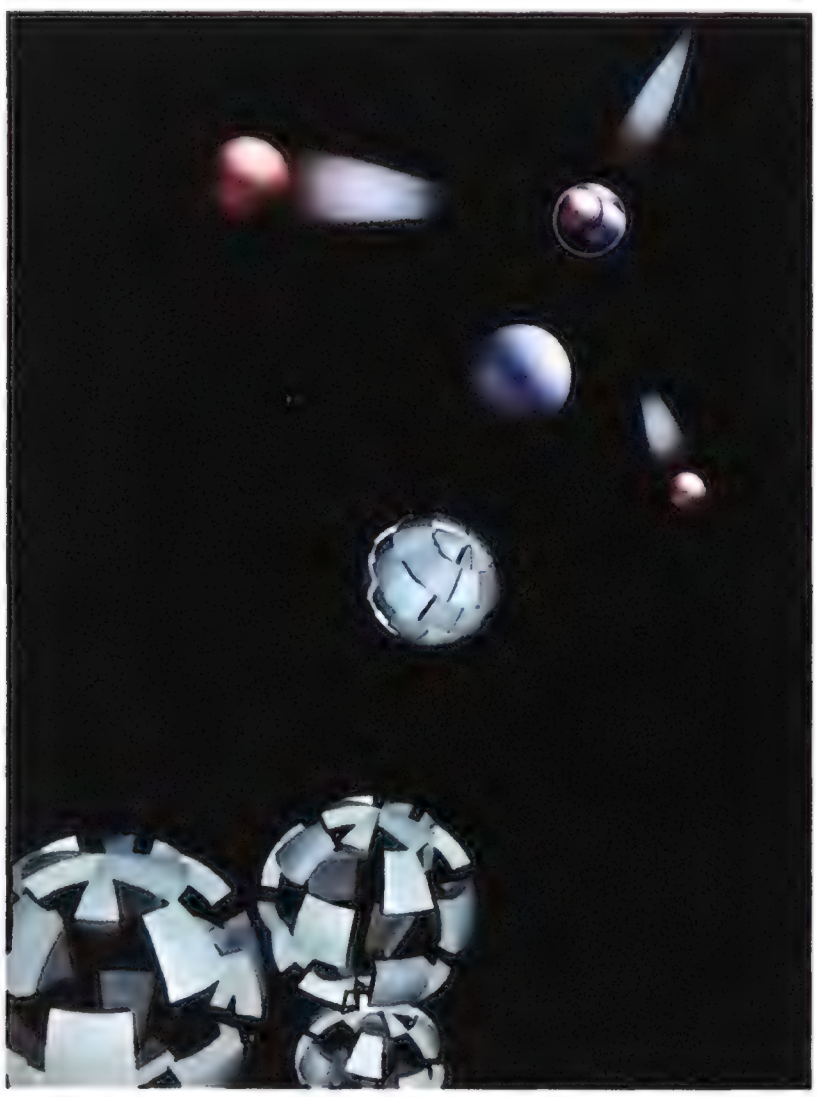
A few years ago, for example, it appeared that the neutrino, a particle presumed since its theoretical prediction and then its actual discovery to have no mass, might have a small mass after all. Cosmologists have speculated that if such were the case, there might be enough invisible mass in the form of neutrinos to close the Universe. When experiments in the United States and the Soviet Union seemed to indicate that the neutrino did indeed have mass, the excitement spilled over into the news media. After all, we have reason to believe that there are as many neutrinos in the Universe as there are photons (the particles that are light and other radiation), and so if neutrinos had mass, there are so many of them that they might indeed add up to enough to close the Universe. Unfortunately, a new generation of experiments has weakened the evidence, and the question of what, if anything, will provide the unseen mass remains unanswered.

This sort of on-again, off-again sequence is typical of the history of this problem, so it probably makes sense to agree that while at present it looks as if the Universe is open, there is enough uncertainty to leave the closed future a strong possibility. The fact that the question is yet to be answered, however, does not mean that it is unanswerable. We could acquire the knowledge necessary to determine whether the Universe is open or closed in many ways, from measuring the deceleration of distant galaxies to developing a better understanding of the problem of unseen mass. At the moment, however, neither our observational nor theoretical capabilities are up to the job.

Exploring all the possibilities

We have no choice, then, but to follow each possible outcome of the first decision point and see where it leads. Let us begin by assuming that nature has chosen to hide 90 percent or so of the mass and that the Universe is actually closed. In this case we are in for a spectacular future. For another 40 or 50 billion years the Universe will continue to expand, but ever more slowly. Then, like the ball falling back to Earth, the expansion will reverse at some point— 50 billion years is a reasonable guess—and a great contraction will begin. Instead of a universe where light from distant galaxies is shifted toward the red (indicating that the source is receding from us), we will find such light is blue-shifted.

Eighty or a hundred billion years from now the Earth and the sun will be long dead. The galaxies will be decidedly less luminous than they are now, with populations of white dwarfs, neutron stars and other faint objects. As the contraction progresses, galaxies move closer together and the cosmic background radiation begins to shift toward the visible part of the spectrum (p. 76). The sky will eventually blaze with light. By this time, the Universe will have contracted to a thousandth or less of its present size. The stars and planets themselves will dissolve into a Universal sea of hot material, and atoms and molecules will dissociate into their constituent nuclei and electrons. From this point on, the stages of the Big Bang that we described last month will simply play backwards—nuclei dissociating into quarks (left) and so on—until we are back to the original state in which it is thought the Big Bang occurred.



As the Universe "runs backward," nuclei (top right) break up, and those constituents decay into quarks.

This scenario leads inevitably to the most fascinating question of all. Will the Universal contraction (which cosmologists half-jokingly call the "Big Crunch") be followed by another expansion (the "Big Bounce")? In other words, will the Universe arise phoenixlike from its ashes and repeat the entire cycle? The picture of a universe which is reborn every hundred billion years or so is very attractive to some

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people. The main advantage of an eternally oscillating universe is that the questions "Why did it all start? Where did it all come from?" simply do not have to be asked. The Universe always *was* and always *will be*. A hundred billion years from now the Universe may again consist of a large collection of separating galaxies. And perhaps there will be another version of you reading another version of this magazine.

It is a fascinating thought, but before we go too far into speculation, I should warn you that there are some serious problems with this picture. At least a few theorists argue that unless some of the basic laws of physics change during part of the cycle, the average disorder of the Universe might have to increase during each bounce, so that eventually the system would have to run down. And, of course, the whole idea of oscillations depends on the presence of enough mass to close the Universe and initiate the Big Crunch. Our present information seems to favor a quite different future.

So let us go back to our first decision point and look at the other option, the case in which there simply is not enough matter around to stop the expansion.

Scientists used to think that the universal tendency of every system to run down would eventually result in a universe in which everything had come into equilibrium at the same low temperature. This was called the "heat death" of the Universe. But this cannot happen in an eternally expanding system, because the components become too isolated to interact, so some thought has to be given to what will actually take place. Freeman J. Dyson, one of the most inventive minds in the fraternity of theoretical physicists, has explored the possible future course of the Universe. He did so not only because of the intrinsic interest of the problem, but also to examine a much deeper question: Could life survive in an open universe? Besides, a closed universe gives him a feeling of claustrophobia.

Because the expected lifetime of an open universe is infinite, we will have to think about very long times indeed if we are to follow the twists and turns of this possible future. Scientists like to write large numbers in what is called exponential notation. For example, the number 10^3 should be interpreted as a one followed by three zeros, or 1,000. The Universe is now roughly ten billion years old, a number with ten zeros that we would render as 10^{10} years. The life cycle of a closed universe is often taken to be around a hundred billion, or 10^{11}, years. Each time the power of ten is increased by one unit, the number being represented increases tenfold.

When we talk about looking into the future, it is tempting to imagine watching a film being run at a uniform speed. Another way to think about it—one that will give a better feeling for the immense time scales involved—is to imagine that the film speed is multiplied by ten when the power of ten goes up one digit. Thus, if we imagine that we are watching such a film being run at the rate of ten billion years every minute, then right now we are a little less than two minutes into the story following the Big Bang. Eight minutes from now we will be seeing the Universe when it is 100 billion (or 10^{11}) years old. The power of ten has gone up one digit, so at that point the film speed increases by ten. The next ten minutes will take us to a trillion (10^{12}) years, at which point the speed again increases by ten, so that time is going by at the rate of a trillion years a minute, and so on. Adopting this way of looking at things is the only way we can even begin to imagine the immense time scales involved in working out the death of the Universe.

The opening stages of an open universe

If the Universe is open, the only change in the expansion will be a slowing down. The process of star formation may be winding down in the next 100 billion years or so, as we have already seen. The burning-out process would go on for a long time. Small, slow-burning stars could last as long as 10^{14} years, giving a pale illumination to the sky. As these stars cool off, other kinds of dissipation begin to become important. Some stars will evaporate from the outer regions of the galaxy in a time scale of 10^{19} years, while the densely packed stars in the galactic center may collapse together into a large black hole. When the Universe is a billion times older than it is now, corresponding to nine changes in film speed, we will see an ever thinner sea of background radiation in which an occasional black hole is embedded. Scattered around among these landmarks in nothingness will be the solid remains of the evaporated stars and such debris as has escaped capture up to this point. The Universe will keep this aspect through

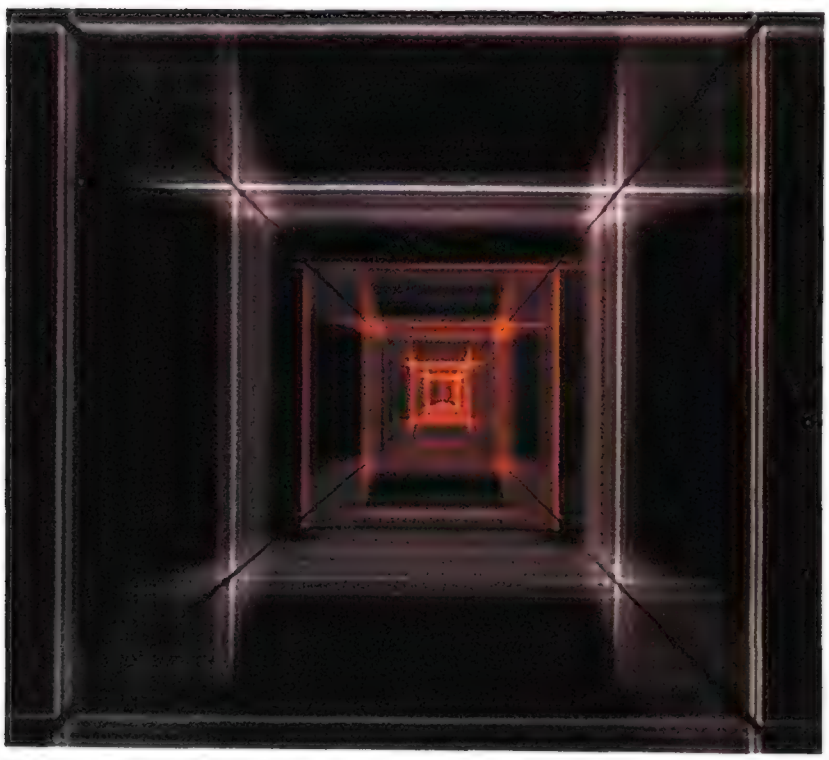
Matter may not last forever. Here a proton (center)
breaks down into a pion (bottom) and positron (right).

12 more increases in film speed until the next point, which occurs at about 10^{31} years.

At this point we have to ask about the fate of the remnant solid matter. According to current theories, the protons that make up all matter are unstable, and have a lifetime of roughly 10^{31} years. If the proton is indeed unstable on this very long scale, then by the time the film gets near to this point matter will be disintegrating fast enough to be visibly disappearing in our cosmic version of time-lapse photography.

If, on the other hand, matter is stable, nothing of this sort will have happened by 10^{31} years. The Universe will go on expanding and cooling off. Occasionally some of the miscellaneous solid material will fall into a black hole, producing radiation as it does so. A hypothetical astronomer observing the Universe would be getting very bored, because this state of affairs would persist until 10^{65} years had passed.

With the film now running at about 10^{65} years per minute, an important process is starting to take place among the black holes the size of, say, our sun. We think of black holes as bodies so dense that nothing can ever escape their gravitational pull, yet on long time scales it turns out that this is not quite accurate. Black holes will lose appreciable energy through thermal radiation. In a sense, the black hole is like the ember of a fire, giving off radiation to its surroundings. When the film is running at 10^{65} years per minute, a black hole will start radiating substantial energy, getting brighter and brighter as it does so. In one minute of film time, the black hole will brighten the sky and then disappear, its only monument an addition to the



If it is closed, the Universe may fall back through frames of time to a hot, primordial state (center).

In an open Universe, particles remain (wisps) while black holes evaporate (red flashes).

expanding sea of radiation. As the film runs on, speeding up every ten minutes, larger and larger black holes will undergo the same process and evaporate themselves away. For the next 35 changes in film speed, this is what we would see, an expanding universe with occasional fireworks as a black hole dies. This process goes on until all black holes are gone, and by the time it is over the film will be running at the speed of 10^{100} years per minute.

If the protons have decayed, this is the end of our story, because there is nothing left in the Universe to produce any real change. If the proton does not decay, however, the disappearance of the black holes still leaves us with some solid matter to watch. The film now runs for ten days, until each minute corresponds to 10^{1500} years. Just writing the zeros in this number would require a full typewritten page! On this time scale matter turns to iron, the most stable nucleus. As we watch the film, then, we will see whatever solid material is left transform itself into iron. On still longer time scales—scales so long that we might have to watch our film for longer than the lifetime of the Earth—these iron spheres would transform into black holes, which would eventually evaporate.

This means that at some distant time in the future, the Universe will probably be a cold, thin sea of radiation, with perhaps a few forlorn particles. Undaunted by this bleak prospect, Freeman Dyson argues that life could evolve away from flesh and blood—possibly into clouds of electrically charged particles—and outlast the stars and galaxies themselves while the Universe cools.

The great debate over whether the Universe is open or closed comes down to the question of whether it will all end in fire or in ice, whether everything will fall back in on itself only to repeat the cycle, or whether the last bits of matter and radiation will disappear into a darkness that expands forever.

This is, in a sense, the last, the ultimate, question of science. The cosmic switch has already been thrown; the answer, though unknown, is already ordained, and Man cannot influence the outcome. But simply to discover it would be a triumph of the human intellect.

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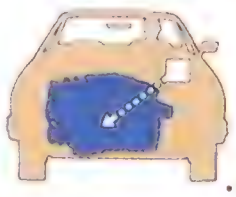

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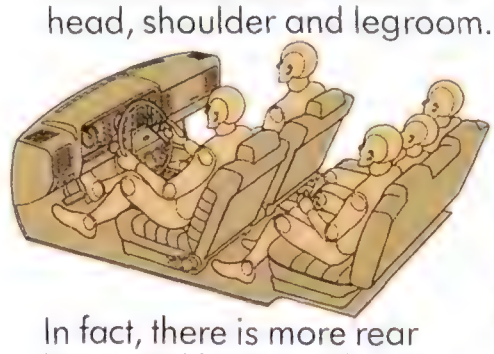

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†Based on SAE standard J1349

*The above estimates are projected Ford ratings based on Ford Engineering's test data, and are expected to be very close to official EPA ratings. Use for comparison. Your mileage may differ depending on speed, distance and weather. Actual highway mileage and California ratings will probably be lower. See your Ford Dealer for a copy of the Gas Mileage Guide when available.

HAVE YOU DRIVEN A FORD...LATELY?

Ford

By Carrol B. Fleming

Maidens of the sea can be alluring, but sailor, beware

In our folklore the mermaid is celebrated for her captivating charms; still, it is prudent to admire her from a safe distance

The oceans' legendary mists have long swirled with tales of exotic beasts—sea serpents, giant squid and a variety of monsters. But the stories, whether based on fact or fantasy, tell of no creature with as much age-old charm as the mermaid. The idea of near humans—both male and female—inhabiting the sea and inland waters has captured imaginations since people first ventured seaward, and for a very long time mermaids seemed every bit as real as flying fish.

The folklore of mermaids is ancient and widespread, crossing cultures, continents and centuries; stories of mer-folk and their habits correspondingly traverse every latitude of the imagination. Mer-people have been called by diverse names—Sirens, nixies, kelpies, *Morgan*, nymphs, Tritons, silkies and Nereids, among others. The stories vary more than the names; some tell of kindhearted beauties who wanted only to introduce their lovers to the rapture of the deep, while others recount mer-monsters hell-bent on ripping the drowned limb from limb. Some mermaids had hair of glimmering gold; others sported fishy tresses of blue or green that matched, in hue, their pointed teeth.

Like all folkloric characters, each group of mer-people has specific traits and habitats, but there are some features that we have come to associate with the generic mermaid. The part-woman, part-fish charmer, with a mirror in one hand and a comb in the other, gives room for a great deal of artistic variation, but most mermaids tend to merge woman with fish near or below the waist, where the female torso starts to taper with scaly grace to a fish's tail. Then things vary—mermaids have worn the speckled tails of mackerel, the flukes of dolphins and the sinewy tails of eels; some are skirted, others snakelike.

In overall form their bodies are designed for open-water seductions and quick getaways—and are, as the story goes, as soulless as water. Traditionally, the only way for a mermaid to acquire a soul is by marrying a mortal. There are many accounts of these mixed marriages—and unrequited attempts—from Undine of

Called a fake when shown in 19th-century London, "Feejee Mermaid" was later displayed by P. T. Barnum.

Herbert Draper painted this version of the Odysseus legend about 1909, taking full advantage of its drama.

drama and ballet fame to Hans Christian Andersen's "The Little Mermaid."

Often the mermaid's voice is as beguiling as her beauty. The enticements of Siren song are said to have lured ships to the rocks and sent sailors to the kingdom of the drowned. The whole idea of literally pulling good men down is a constant theme in mermaid lore. The great 20th-century poet William Butler Yeats took a rather liberal view of this in "The Mermaid." By making this particular sea-woman more unthinking than malicious, Yeats created a modern mermaid with a human forgetfulness:

> A mermaid found a swimming lad,
> Picked him for her own,
> Pressed her body to his body,
> Laughed; and plunging down
> Forgot in cruel happiness
> That even lovers drown.

This open-minded approach to mermaid imagery is

Feathered, finned (and cruel), mermaid-Sirens descend on sleeping-sailor victims in a 14th-century drawing.

240. Monstre semblable à une Sirenne pris à la côte de l'isle de
Il étoit long de 30 pouces gros à proportion comme une Anguille. I
jours et sept heures. Il pousoit de temps en temps des petits cris com
quoy qu'on luy offrit des petits poissons, des coquillages, des Crabes, c
fit mort quelques excrements semblables à des crottes de chat.
241. Ecrevisse extraordinaire qui étoit longue de 30 pouces dep
jusques à la queuë. Voyez la Planche XLV. N° 187.

Amboina Mermaid appears with crayfish in old natural history, which said she cried out like a mouse.

a somewhat recent development; the Sirens of the *Odyssey* were pitiless, as is the mermaid in most of our familiar folktales.

Legends often intermix and change so quickly and with such piecemeal logic that, although ancestries are traceable, it is impossible to be sure of their exact lineage. So it is with the mermaid. The first mermaid ancestor was probably Oannes, the Babylonian fish man-god. In the earliest representations of him, the benevolent Oannes had a human form and wore a cap resembling a fish's head and a long cape of fish skin. Oannes' feminine counterpart, the moon goddess Atargatis, known also as Derceto and worshiped by Syrians, Philistines and Israelites, is the earliest female fish deity. The Greek writer Lucian, in the second century A.D., described her from a Phoenician drawing saying "in the upper half she is woman, but from the waist to the lower extremities runs in the tail of a fish." As a moon goddess, Atargatis added many facets to the fish-god profile. She was associated with the more mysterious attributes of the night and the changing phases of the moon, and went on to acquire an aura of seductiveness, vanity, beauty, cruelty and unattainable love. Today's mermaids still reflect such characteristics.

Atargatis is generally regarded as the predecessor of the Greek goddess Aphrodite, who arose from the foam in a seaborne scallop shell. Although this long-haired love goddess was often pictured with a mirror and was always associated with the sea, those were her only links with the modern mermaid.

Another group of legendary Greek characters, the Sirens, also added their traits to the mermaid prototype. Greek vases of the fifth century B.C. show the Sirens as birdlike creatures with wings and claws but with women's heads. Their deadly melodies coaxed ships and sailors to destruction.

According to mythology, only Orpheus and Odysseus heard the Sirens singing and managed to escape. The legendary poet Orpheus outplayed them on his lyre; the forewarned Odysseus had himself lashed to the mast of his boat. His crew, their ears plugged with beeswax, rowed obliviously past the Sirens, and Odysseus, although enchanted by the song, could not escape his bonds (pp. 86-87).

From here it was a practical storytelling transition to meld these bird-Sirens more closely with the ocean by having them live there. And as a result, they underwent corresponding physical changes, gradually acquiring more fishy attributes; so much so that the words Siren and mermaid are now used almost synonymously. However, the Sirens went through centuries of intermediary forms when they were both feathered and finned. Throughout the transition they always kept their reputation for song, for irresistible voices that could doom the bravest sailor.

Carrol Fleming, a free-lance writer now living in California, specializes in sea-related subjects. She wrote about conchs in March 1982 SMITHSONIAN.

LVII. Planche.
é su Boeven dans le Département d'Amboine.
eau à terre dans une Cuve pleine d'eau quatre
eux d'une Souris. Il ne voulut point manger.
ges. etc. On trouva dans sa Cuve apres qu'il
xtremité des jambes

A woodcut from Nuremberg Bible, 1483, shows Noah's Ark attended by mermaid, merman and mer-dog.

While the Siren was a creature of literature and myth, the mermaid was thought to be a *real* beast by natural historians and explorers. Pliny the Elder was the first naturalist to record her in detail. In his monumental work, *Natural History*, which appeared in the first century A.D., he says, "And as for the Meremaids called Nereids, it is no fabulous tale that goeth of them: for looke how painters draw them, so they are indeed: only their bodie is rough and skaled all over, even in those parts wherein they resemble woman."

The pre-Christian mermaid-Sirens were gradually incorporated as church symbols. Fish-tailed enchantresses twined temptingly around church pillars and leered from carved pews. Among other things, mermaids came to symbolize the abduction of the Christian soul; even the story of Odysseus and the Sirens was turned into a popular moral allegory. Clement of Alexandria, in his *Exhortation to the Heathen*, managed to sum it up dramatically: "Let not a woman with a flowing train cheat you of your senses, sail past the song; it works death; exert your will, and you have overcome ruin."

In a way, the Church kept the mermaid legend active until the voyages of discovery sparked public interest in new lands and strange beasts. A flurry of mermaid sightings accompanied the early sea explorations. Mermaids are even mentioned in Christopher Columbus' journal from the voyage of 1492. He wrote of one of his seamen: "He saw three mermaids, who rose very high from the sea, but they are not so beautiful as they are painted, though to some extent they have a human appearance about the face."

There has always been a discrepancy in the descriptions of the mermaids cited by naturalists and sea captains and those representing the poetic truths of artists. Compare, for example, the lovely sea-maid of "dulcet breath" that Shakespeare wrote of in *A Midsummer Night's Dream* (p.94) with the Amboina Mermaid that appeared in natural history volumes in the early 1700s. Although the mermaid of Amboina is given the glamour of exotic coloring, she is still described as a monster. In an original color drawing by Samuel Fallours (left) published in 1717, she has copper-colored skin highlighted with a green that matches the hula skirt of fins around her hips; her long blue tail with its central stripe ends in an elegant fluke. The naive drawing does not seem to echo the caption, which reads:

> A monster resembling a Siren caught near the island of Borné . . . in the Department of Amboine. It was 59 inches long and in proportion as an eel. It lived on land for four days and seven hours in a vat full of water. From time to time it uttered little cries like those of a mouse. Although offered small fish, shells, crabs, lobsters, etc., it would not eat. After its death some excreta, like that of a cat, was found in its barrel.

This poor barreled beast uttering its mouse cries

Nineteenth-century illustration is of "real dugong" and "ideal mermaid," as it was captioned in London.

In British film *Miranda*, 1948, Glynis Johns plays comely mermaid involved with young London doctor.

seems an unlikely relative of Shakespeare's vision in *A Midsummer Night's Dream*, where Oberon

> Heard a mermaid on a dolphin's back,
> Uttering such dulcet and harmonious breath
> That the rude sea grew civil at her song
> And certain stars shot madly from their spheres,
> To hear the sea-maid's music.

These differences in story and verse gained notice as skepticism increased in the early 18th century and naturalists began to qualify their positions. When Erik Pontoppidan got around to discussing the genus of mermaids in *A Natural History of Norway*, he dismissed a lot of mermaid lore as idle talk. He complained about those who have mixed fiction with history and said that "when they give the Mermaid a melodious voice, and tell us that she is a fine singer; one need not wonder that so few people of sense will give credit to such absurdities; or that they even doubt the existence of such a creature." However, Pontoppidan follows this statement with eight folios citing the "true" natural history of the mermaid.

By the middle of the 19th century, stuffed mermaids had become spectacles in Victorian London. Showmen bought most of these so-called preserved specimens, usually trumped-up monkey-fish composites, from Japanese fishermen. Each came with an individual story of its capture, and sometimes sold for thousands of dollars.

One of the most popular (and lucrative) versions of these stuffed curiosities came to be known as the "Feejee Mermaid" (p. 87). It was first shown in a London coffee house and later brought to Broadway by P. T. Barnum in 1842. This Broadway mermaid show

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Old Grand-Dad

Kentucky Straight Bourbon Whiskey. 86 Proof. Old Grand-Dad Distillery Co., Frankfort, KY ©1983 National Distillers

was so popular that it was moved to Barnum's New York American Museum, where, according to Beatrice Phillpotts in her book entitled *Mermaids*, the mermaid nearly "tripled the Museum's takings in the first month of its exhibit."

Not all Victorian mermaids were carnival freaks; there were also a number of artistic and literary fishwomen. The mermaid theme of irresistible yet doomed love had great appeal for 19th-century romantics. This, along with the general interest in folk art and the classical longings of the Pre-Raphaelites, contributed to the plethora of new mermaids—some painted with a venomous beauty and others with a touching innocence. They vary from the sometimes wistful enchantresses of Herbert Draper and John William Waterhouse (cover) to the robust mer-families of Swiss artist Arnold Böcklin. Poets like Tennyson wove mer-folk into verse, while the Pre-Raphaelites Edward Burne-Jones and William Morris extended the vogue into mermaid wallpaper.

The well-known illustrators Arthur Rackham and Edmund Dulac designed small-boned sea nymphs to accompany passages from Shakespeare and Wagner. Painters like Edvard Munch (SMITHSONIAN, December 1978) and Gustav Klimt helped carry the romantic mermaid into the more psychological realm of the modern Siren. The post-Freudian era delighted in all of the innuendo of the mermaid image, and she became a symbol of political and sexual freedom, embodying a desirable lack of convention. The Surrealists found the mermaid evocatively paintable—fish-tailed femmes fatales lounged in dreamlike settings and preened on moonlit streets. Mermaids were also seen on more common ground—from ashtrays and soup bowls to movie screens. The tradition lives: next year the Disney Studios will release *Splash!*

The Saturday Evening
POST
August 20, 1955 - 15c
I THOUGHT I'D NEVER GET HOME
Jet Pilot Ed Heller's Own Story of His Ordeal in a Chinese Prison
THE GREAT DAZZY VANCE TELLS WHAT AILS TODAY'S PITCHERS
Probably most whimsical mermaid illustration of all is Norman Rockwell's magazine-cover version.

The vitality of the mermaid legend—there is probably not a country in the world without some bit of relative folklore—indicates that there may be a substratum of fact, an animal that may appear mermaid-like from a distance. Several possibilities have been suggested: the sea cows of the order Sirenia, including the manatee and the dugong, and, of course, the many varieties of seals.

While these animals hardly have the beauty to sink a ship or even attract a sailor long at sea, they do have certain characteristics similar to those ascribed to mermaids. The nearly hairless manatee is somewhat larger than the human female, but the female manatee's breasts, which are forward near its flipperlike forelimbs, are in a position similar to the human female's. The manatee has no other limbs, and its blubbery body tapers to a horizontal flipper of a tail. The dugong is similar in shape to the manatee. It has a muzzle covered with bristly whiskers and is said to suckle its young with its upper body out of the water, cradling the baby with one flipper. These animals may very well have accounted for some of the reports of mermaid sightings in the tropical seas that manatees and dugongs prefer.

Soft-eyed seals and sailors' illusions

This leaves a large number of cold- and temperate-water illusions to be explained by one of the world's 34 seal species. To the foreflippers and tapering body, the seal adds its soft, appealing eyes; seals also cavort and pose in much the same way mermaids are said to. Sailors have often commented on the seal's similarity to a person seen far off in the water. Even now there are occasional, apparently earnest reports of mermaid sightings in remote parts of the world. But in the main, today's mermaid lives in the realm of folklore, art and cryptozoology.

Cryptozoology, according to Dr. George Zug—Chairman of the Department of Vertebrate Zoology at the Smithsonian's Museum of Natural History, who examined the photographs of the Loch Ness monster taken in 1975—is the study of mysterious animals of

Ottawa, Ontario/Canada

Room with a view

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Influence of Japanese woodcuts is clear in Arthur Rackham's drawing for *A Midsummer Night's Dream.*

unexpected occurrence in time and space. When asked if mermaids would be classified as mammals or fish, Zug gives a scientific chuckle before his careful reply, "All is conjecture until we have a specimen on hand. It's possible to make anything you want out of mermaid stories. Part of the fascination is that they border on the credible.

"There are certain scientific explanations for mermaid sightings," Zug continues. "A 1975 article in *Nature* magazine described how air distortion led to the Scandinavian legends of mermen: they were really walrus. Often atmospheric conditions, fog or mist, can affect perception. Air distortion and refraction are also considered. But the stories, like those of sea serpents, continue because they *are* out of the ordinary and that is always somewhat exciting."

The stories are also of interest to folklorists like Peter Bartis at the American Folklife Center in the Library of Congress. Bartis suggests that the mermaid legend survives "not so much because it is believed, but because it was found to be an effective image. Perhaps it fills a curious psychological need for a man or woman at sea. A sort of wish fulfillment, a comforting story about drowning."

There are folktales and songs that support Bartis' sentiment; one of the most appealing versions is that in the last stanza of an English sea chantey, "Married to a Mermaid":

> We lowered a boat to find him, we thought to see his corpse,
> When up to the top, he came with a shock, and said in a voice so hoarse,
> "My shipmates and my messmates, oh, do not weep for me,
> For I'm married to a mermaid at the bottom of the deep, blue sea."

The Sirens' ancient charm continues today in the kitsch of seaside souvenirs and in the lusty mermaids traditionally tattooed on seamen's burly biceps. But the modern mermaid has also developed a broader personality. She can withstand the wry whimsy of cartoons or provide a focus for poets and painters interested in portraying the psychologies of desire.

As folklorist Bartis says, "Everyone knows what a mermaid is, how the story operates. Its long visual and oral tradition persists in figureheads, signboards, tattoos, jokes, even children's cartoons. The mermaid legend must continue to serve a function today or the stories would simply die out."

The subject was rich in possibilities for Pre-Raphaelite style of Isobel Gloag in *The Kiss of the Enchantress.*

By Tom Prideaux

The dream palaces of another age are shining again

Once a central part of American community life, the local theater, largely in decay, is now experiencing a national revival effort

Director Michael Price pauses on the grand staircase, Goodspeed Opera House, East Haddam, Connecticut. As welcoming outside as in, the Goodspeed, pristine once again, adds tone and life to the community.

In the gentle glow of twilight, playgoers saunter into the restored Goodspeed Opera House as though they were returning to an earlier era of American history. Arm in arm or chatting, they bear witness to a recent and arresting national phenomenon: an upsurge in old-theater restorations where people can gather and share entertainment in a friendly setting. In the past few years, according to the authorized National List of Historic Theater Buildings, 130 playhouses built before 1910 have been rescued and put to active use.

What accounts for this outbreak of reclamation fever? The causes and motives are mixed. Some have to do with improving real estate values and spurring enterprise in the old-theater areas. Others are concerned with cultural enrichment.

No restored playhouse has a livelier history than the Goodspeed in East Haddam, Connecticut (opposite). When William H. Goodspeed erected this multistory wonder in his hometown on the edge of the Connecticut River in 1876, he felt it would be a boon to both commerce and culture—and he was right. Goodspeed was already boss of his father's general store. He operated a local bank, shipyard, steamboat and railroad lines. East Haddam was a favorite stopover for riverboats puffing from New York to Hartford, and Goodspeed ran the only regular ferries between the river's east and west shores. A visitor to East Haddam could hardly eat, sleep, drink, travel or have a good time without paying a fee to Goodspeed.

The lower four floors of his new castle included a waterside bar, ticket and freight offices, a general store that sold both farm implements and Paris perfume. The two top floors blossomed into a splendid 300-seat opera house, which offered a diversity of treats from *Uncle Tom's Cabin* to readings by Minnie Maddern Fiske and sermons by Henry Ward Beecher.

By the 1920s, sadly, the Goodspeed had fallen out of style, and eventually became a storehouse for highway-department trucks. But in 1959, just as the wrecking ball was about to bash it to smithereens, a group of citizens rushed to its rescue, bought it from the state for one dollar and, with the help of private benefactors, restored the old hulk to its jewel-box status, expecting it to function chiefly as a summer theater.

In its third season the Goodspeed put on an original musical about Don Quixote, *Man of La Mancha*, which went on to become a huge Broadway hit. The playhouse decided to specialize only in musicals. Under its peppery young director, Michael Price from the Yale Drama School, it became a sort of backwoods

1876
GOODSPEED
Opera House

Dream palaces are shining again

This sorry sight is how the Ohio Theater, Cleveland, looked after fire, water and vandals had ravaged it.

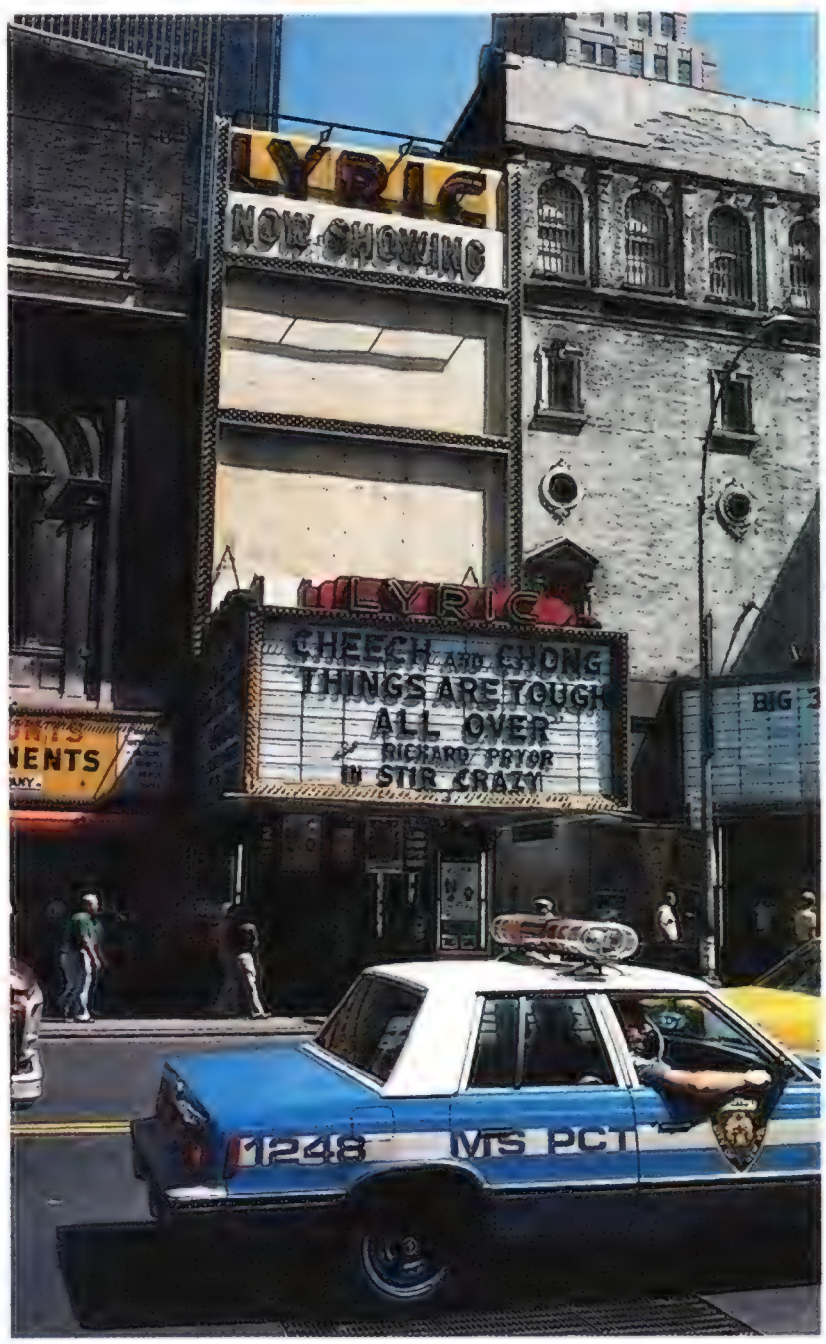
Bayreuth, offering three musicals every season: two old favorites and a new one. Out of these, nine have been sent to Broadway. One was about Little Orphan Annie, which, under the title *Annie*, played there for almost six years.

The Goodspeed, now supported by 8,000 annual subscribers, owes much of its luster to its surroundings. It attracts patrons not only with polished productions, but by leading them into a charmingly decorated Victorian world that extends to a nearby restaurant and to a stretch of old-fashioned riverbank where the local youngsters fishing for catfish look as though they had sneaked out of a Mark Twain story.

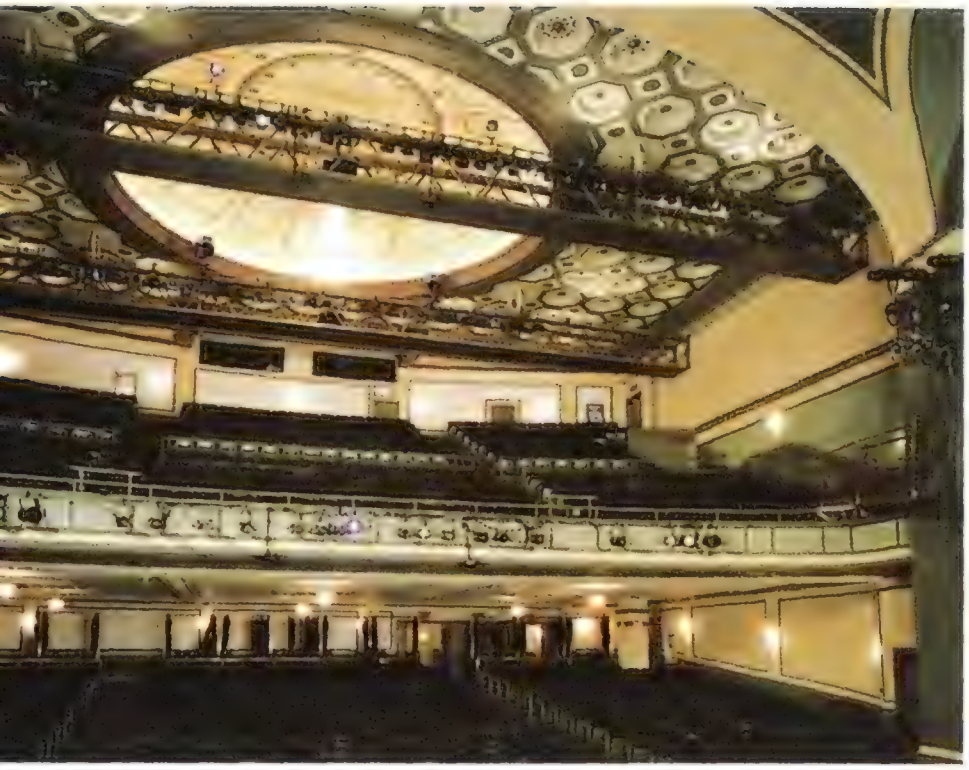
In contrast to the gracious refinements at Goodspeed, a more rugged venture is now under way at Thomas, West Virginia (pop. 980). Passenger trains and buses no longer stop here, and the nearest movie is 40 miles away. So in Thomas, where the main street runs parallel to the lonely railroad tracks beside the Blackwater River, the people stick together for sports and entertainment. Most of them come from coal-miners' families. They fish, ski, hunt white-tailed deer, ruffed grouse, brown bear—and sometimes dance in a converted auditorium. For special sprees they bust loose at community cakewalks, wood-chopping contests and an annual invitational dirt-bike race.

But now the Thomas people are adding a new-old dimension to their lives. They are restoring Cottrill's Opera House, built in 1906. This red-brick temple of amusement, once a stopover for all kinds of traveling shows, is being repaired and polished after ten years of empty gloom. In a few years it will woo new customers with burgundy-velveteen walls, squashy carpets and a sparkling crystal chandelier.

Cottrill's Opera House is sponsored by a local West Virginia group, Alpine Heritage Preservation Inc. Some of its members feel that the spruced-up theater



An ornament when built for American Opera School, 42nd Street, New York, the Lyric will be reclaimed.



Renovated, the Ohio today is again proud and elegant, a center for legitimate theater and performing arts.

Patrons will then enter the Lyric by way of 43rd Street where its fine facade, detail above, is preserved.

will be a financial blessing to the whole area around Thomas, which already draws a million vacationers a year. The total repair bill is estimated at $2 million. So far, $38,000 has come from grants, private donors, and bank loans, including a generous contribution from the Chessie System.

A similar enthusiasm is arising in Galveston, where the 1894 Grand Opera House is being redone in Victorian style while continuing to produce plays. In Joliet, Illinois, a handsome old playhouse, the Rialto, has been restored, calling itself, with unabashed pride, the "Jewel of Joliet." And in Winston-Salem, a fusty old vaudeville house, the Carolina Theatre, has emerged resplendent as the Roger L. Stevens Center for the Performing Arts, honoring the chairman of Washington's Kennedy Center (SMITHSONIAN, January 1979) and providing a major facility for dance, music, theater and opera.

Restored theaters are often like colorful senior citizens who evoke their own dramatic past. Piper's Opera House in Nevada emits a special charisma for having been a silver-miners' hangout. Ford's Theater in Washington, D.C., recalls a tragic night in American history as the scene of Abraham Lincoln's murder.

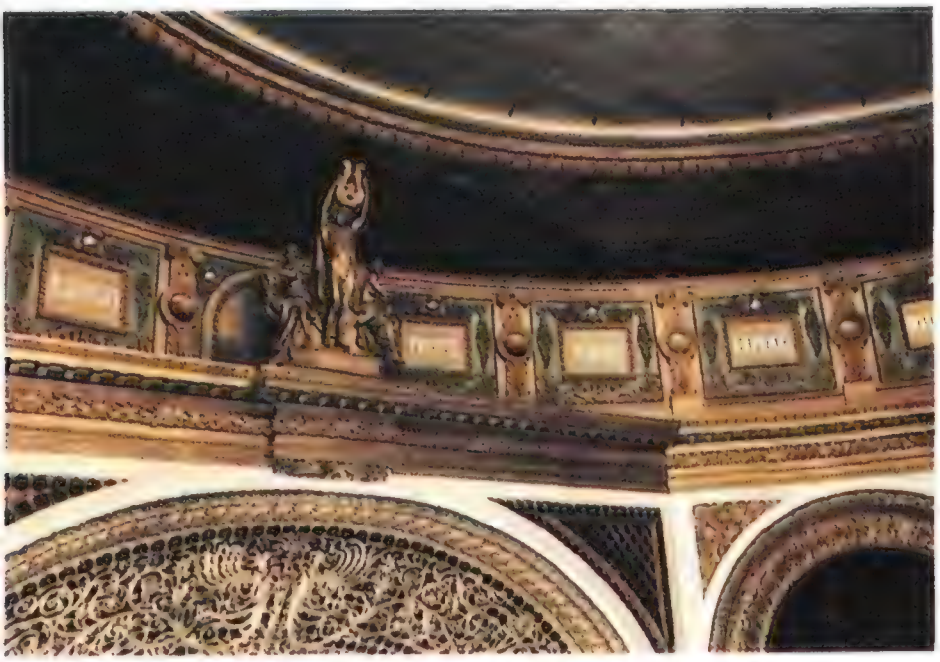
These theaters create their own buffs, who get a kick out of exploring the old sanctums. Last June the League of Historic American Theatres, based in Washington, D.C., organized a four-day trip including lectures, workshops, box lunches and banquets. The spree began with the elegant Pabst Theater in Milwaukee, built in 1895, whose frequent repairs suggest the plastic surgery on a venerable movie queen. Then the pilgrims bused around Wisconsin to check out four more rejuvenated theaters, one of which, the Al Ringling at Baraboo, is a small copy of the Versailles opera hall.

Bistros, boutiques—and Nicholas Nickleby

In Cleveland the trend is cresting in once-famous Playhouse Square, where four fine old theaters are in the process of reconstruction—the Ohio, Palace, State and Allen, all of them dark and deserted for years. The project carries a price tag of $22.5 million and is expected to include a festive covey of bistros, chic boutiques, cafés and small art galleries.

The first one to open was the Ohio (above, opposite), which serves as the permanent home of the Great Lakes Shakespeare Festival. Its opening season was marked by an astonishing event. The Ohio put on the first all-American version of *Nicholas Nickleby*, an eight-hour adaptation of Charles Dickens' giant novel that knocked Broadway on its ear when it was imported from London in the autumn of 1981.

The most difficult and ambitious of all U.S. theater reclamations involves a flock of playhouses on West



Frieze with names of playwrights, composers, artists embellishes dome of Milwaukee's Pabst Theater.

42nd Street in New York City: the Harris, Empire, Liberty, Selwyn, Lyric, Times Square, Apollo, New Amsterdam and Republic (now called Victory).

Until the late 1920s this single block between Broadway and Eighth Avenue epitomized the nation's theatrical glamor. Then, with Prohibition, the Depression and the growing popularity of the movies, it gradually slid into being one of the most disreputable streets in America, a boulevard of nightmares and a conduit of vice, lined with pornographic bookshops and peep shows, crawling with dope peddlers, prostitutes, pickpockets, beggars and con men. Its grand old theaters became shabby movie houses, selling low-priced tickets but making profits by operating 18 hours a day. Many of these "grinders" kept vestiges of their fancy ornaments, so that a bleary derelict might glance up at a plaster angel peering down at him as if to ask, "How did we both sink so low?"

The City has every reason to clean up this "block of sin." It is ideally located for tourists, situated a short walk from major rail and bus terminals and adjacent to other areas of Broadway that remain safe and respectable. Many sociological studies and reports were made on the problem with the result that extensive renovations—including subway-station improvements—are now started at an estimated cost of $35 million.

The stately Apollo, where several of George Gershwin's early songs were introduced in *George White's Scandals*, was reclaimed four years ago as a reputable playhouse, but only by a clever strategem. The entrance was switched to quiet 43rd Street so that playgoers could avoid walking along 42nd.

Author and critic Tom Prideaux has written a number of articles on theater for SMITHSONIAN, *most recently on Misia Godebski Natanson Edwards, February 1980.*

Lighted up and grand, Kansas City's Folly is a fine backdrop for crowd celebrating New Year's Eve.

The next 42nd Street theater to be renovated is the New Amsterdam, home of the celebrated *Ziegfeld Follies*. Listed now in the National Register of Historic Places, the New Amsterdam, beneath its grime, is still a masterpiece of Art Nouveau architecture, with plaster vines twirling over doorways and boxes, and its lobby decorated with bas-relief scenes from Wagner operas and Shakespeare's *Midsummer Night's Dream*. Along with another theater, it was bought for a reputed $5 million by a respected Broadway-theater owner, James Nederlander, who is restoring its former opulence and will use the big stage mostly for musicals. Because of the New Amsterdam's dazzling history, its reopening next October with Anthony Newley in a new musical, *Chaplin*, will be a gala event. According to Frederic Papert, president of the busy 42nd Street Development Corporation, "It will be the most encour-

aging sign of all the efforts to reclaim the great street."

Best known of all American theaters, New York's Radio City Music Hall is also a born-again baby. Doomed to close in 1978, it had been losing more than one million dollars a year. With increasing availability of its blockbuster-type films in first-run movie houses nationwide it no longer attracted large tourist audiences. Yet when the Music Hall's impending death was announced, a yelp of protest rose across the country as though a sacred institution was about to be destroyed. Its interior (p. 102) was given the status of a New York City Landmark, thus saving it by law. But then the owner, Rockefeller Center, Inc., yelped back, charging it had been stuck with a white elephant at dire financial cost. Yet in time the corporation changed its tune, realizing the case was now one of adapt or perish. Planners considered piling a high-rise office building on top of the Music Hall to help meet expenses, but settled for a $3 million restoration job. Every inch of

Joan Dillon, prime mover in renovation project, poses in the Folly with executive director, Robert Dustin.

the old 1932 theater was renewed: new carpets and curtains rewoven from original patterns, new gold-and-silver wallpaper reprinted from original plates—altogether the most colossal theatrical housecleaning on record.

Miraculously, it worked. The Music Hall still offers its 36 superb Rockettes—there is no problem in restoring Rockettes—kicking in unison like a coordinated centipede. But an entirely different policy of entertainment is being adopted by a brand-new production company. In keeping with the growing American taste for a wide variety of performing arts, the Music Hall is booking rock bands, concert singers, TV comics, ballets, a few exceptional films, Broadway-style revues, the traditional holiday pageants and, this spring, had George Gershwin's opera, *Porgy and Bess*. The future now depends on a diversity of treats.

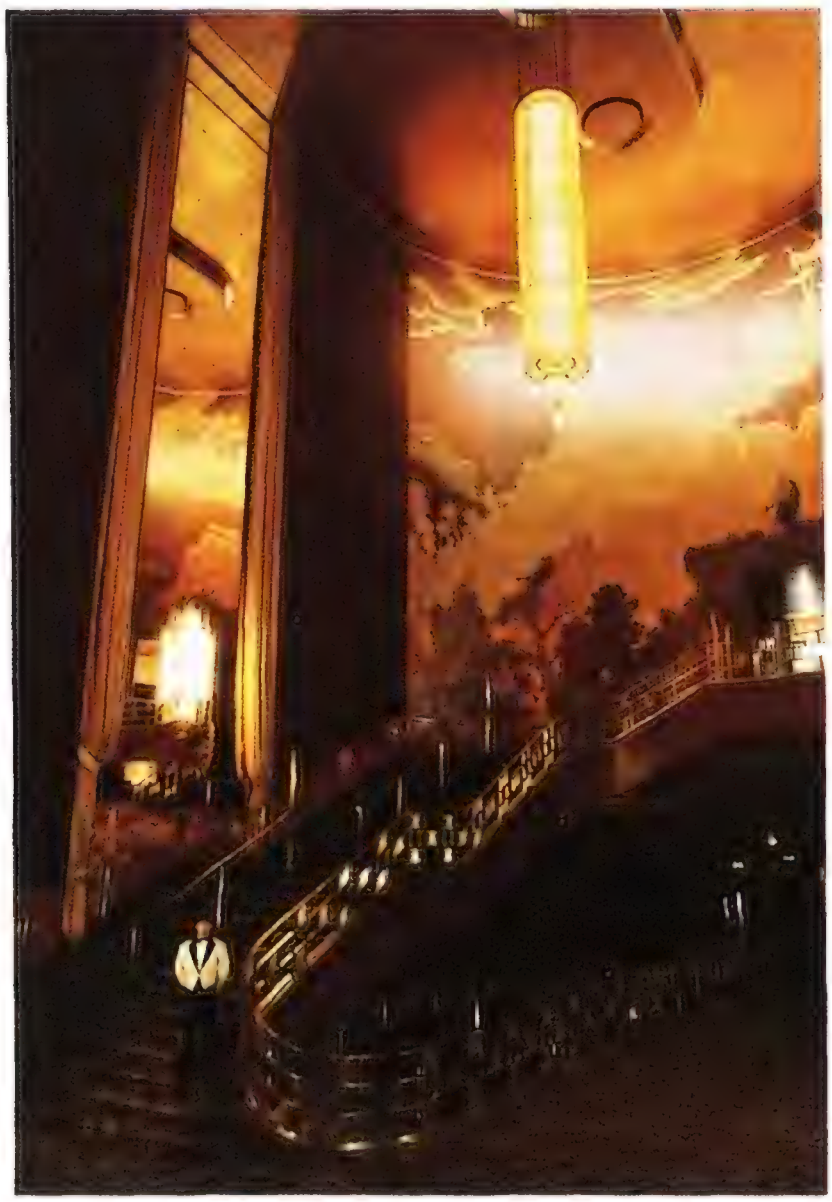
The same basic problem that confronts the Music Hall is one that confronts dozens of other reclaimed theaters in America—the need to fill them with good entertainment. The problem is especially well handled in Kansas City's newly refurbished Folly Theater, possibly because the old house has a tradition of a rich hodgepodge of attractions. First called the Standard, it opened in 1900 with a burlesque show discreetly named "The Jolly Grass Widows—a Polite Vaudeville," while its red-brick and white-trimmed facade displayed the noble influence of the great Italian Renaissance architect Andrea Palladio. By 1902, renamed the Century, it was presenting vaudeville stars such as Al Jolson and Fannie Brice. After the Saturday-night shows, prizefights were often presented onstage with the likes of Jack Dempsey and the black champion Jack Johnson.

Then fire partially destroyed the Century. It was sold to the Shuberts and renamed the Missouri Shubert, to rise again in the Roaring Twenties by presenting such touring stars as Humphrey Bogart and the Marx Brothers. But the old theater sank once more during the Depression. In 1932 it closed for nine years, only to bob up as the Folly and revert to burlesque with such aristocrats of striptease as Tempest Storm and Gypsy Rose Lee.

But the art of undressing was going out of style. By the 1950s the Folly was down again, down to dismal X-rated movies, and, by 1973, plans were made to demolish Kansas City's oldest playhouse. The threat spurred to action several public-spirited citizens, including JoanDillon (p. 101), who got the Folly listed on the National Register of Historic Places—which blocked its destruction. Then she recruited the help of four Kansas businessmen, who persuaded the Folly's owner to sell it for $500,000 (half of the original asking price).

To renovate the Folly, $4.4 million was needed. Joan and her cohorts were not sure they could manage it, but they started the job anyway. (At present, only about $1.5 million remains to be raised.) In the process of cleaning the interior, nine tons of pigeon droppings, smashed eggs and feathers were vacuumed from the attic, then given to the Kansas City Parks Department for eventual use as fertilizer—an act which some felt demonstrated that new life can spring eternal from the ejecta of the old. When the Folly finally had its dressy opening on November 10, 1981, the theater itself looked the dressiest of all.

Once a playhouse is reborn, life has to be restored to the premises—the most important restoration of all. Audiences must be enticed inside, expenses paid, the community served. At the Folly, its 34-year-old executive director, Robert Dustman, keeps a lot of pots boil-



Interior of the main lobby of Radio City Music Hall, with resplendent staircase, is now as good as new.

Since Music Hall opened in 1932, Rockettes have been world renowned for their routines—and lines of legs.

ing on his stove, striving for the greatest possible diversity, exactly as the directors are now doing at Radio City Music Hall and in most other community theaters in the United States. Dustman may book a series of touring plays recruited from diverse sources, or a string of star performers like Cab Calloway and his band, or the Mark Twain specialist Hal Holbrook. But most important, the Folly must lend its 1,078-seat facilities to a wide variety of local groups: jazz by the Charlie Parker Foundation, Friends of Chamber Music, the Westport Ballet, children's theater, business meetings and conventions. Last year the Folly joined forces with the local Lyric Opera in a rare cultural coup—the American professional premier of Mozart's incomplete opera, *The Goose from Cairo*. Patched together with words by top Broadway lyricist Sheldon Harnick, it jammed the theater for two nights.

Salvaging a theater is usually a community effort, which makes it especially satisfying: many classes of people pitch in, donating time and money. At the Folly, typically, some 600 citizens still work as unpaid ushers, tour guides and research and office help, while keeping up a relentless blitz of cookie and T-shirt sales —all teaming together in a sort of civic quilting bee.

How much of this yen for restoration springs from nostalgia for bygone days? To some degree, it doubtless does reflect a Proustian itch to recapture lost times. But to Kansas City's Joan Dillon this is not the whole story. "Aside from nostalgia," she says, "people like the Folly because it is a relief, after so much modern architecture, to see a place that's pretty and comfortable." A theatergoer at Goodspeed adds another insight, which suggests that today something is dwindling in American life: "I like to dress up and be sociable in a bright place with my friends, instead of always watching TV in a dim room at home."

By David Atlee Phillips

My not-so-golden newspapering days in wildest Chile

A neophyte got less than he bargained for when he took over the South Pacific Mail, *Latin America's English-language tabloid*

"Why don't you buy the *South Pacific Mail*?" asked the American consul in Valparaíso, Chile—more than 30 years ago—as he handed me an official-looking envelope. Before answering I ripped it open and found a U.S. Government check for $812. I had been waiting for the money for months. My new wife and I had lived in Chile for a year while I attended the University of Chile. My monthly G.I. Bill payments had been tied up in bureaucratic tape somewhere in the Veterans Administration in Washington.

"Buy a newspaper with this?" I showed the check to the consul. "It's all I have, other than two boat tickets back to the United States."

The consul explained that the *South Pacific Mail*, a longtime British institution in Chile known as the *SPM*, was printed by a local Spanish-language daily, so a buyer would be acquiring nothing beyond the name, the files, a few typewriters and office furnishings. The publisher had died recently; his family wanted to dispose of the money-losing publication.

"Just thought I'd mention it," the consul said. "It seems such a splendid opportunity for a young man. The family is ready to sell it for $2,000—if the buyer will assume responsibility for accumulated debts." I thanked the consul and walked the two blocks to the Grace Line office to arrange a sailing date. On the way I stopped at a news kiosk to purchase a copy of the *SPM*. I sat on a bench near the seawall to inspect the newspaper. It was a dreadful product.

"I was thinking of buying that rag." I looked up. My American friend Taylor Collins, an automobile dealer in Valparaíso, gestured toward the *SPM*. He told me he had been a publisher in North Carolina before moving to Chile. "The *SPM*'s a potential gold mine," he said. "If I buy it will you be the editor?"

I told Taylor I planned to return to the United States. Taylor had a proposal: if I would match his thousand dollars to buy the *SPM* he would subsidize expenses for six months while we attempted to turn the paper into a profitable venture. I cashed in the steamship tickets and, at age 27, became the copublisher and editor of a British newspaper touted as the oldest English-language publication in Latin America.

SPM offices were in a dilapidated building owned by the British-based Pacific Steamship Navigation Company. The elevator was an antique cage. It lurched and creaked to the fourth floor. I stepped out into an enormous room where—had it not been so cluttered—a game of basketball could have been played. Cobwebs festooned the cavernous office. The walls were black with the accumulation of years of undisturbed grime; the color had drained from a patchwork display of out-of-date calendars, patent-medicine advertisements and

The South Pacific Mail.
No 1 Valparaiso Nov 6 1969 20 cents

Venerable *SPM* "told Englishmen when it was raining in London so they could roll up their pants in Chile."

"I sat on a bench near the seawall to inspect the newspaper. It was a dreadful product."

political posters. One of the newest lithographs was a portrait of Winston Churchill extending two fingers in his V-for-victory signal. Scattered around the huge room were dusty files, fungi-covered archives, stacks of old newspapers, rickety desks and ancient typewriters. A long table was the centerpiece in the debris. About 15 people sat around it, eating and drinking.

It was teatime at the *SPM*. The long table was loaded with pots and plates: three blends of tea, huge blocks of butter, slabs of raisin bread, tubs of jam and honey, thick biscuits and colorful tins of imported cakes and candies. No wonder this newspaper is losing money, I thought. With that many employees and so much food. . .

At that moment the building shook violently. Dust mottled the shafts of light streaming through tall windows, ashtrays rattled on desk tops, and a lighting fixture swung from the ceiling in sickening circles.

Illustrations by Nicholas Solovioff

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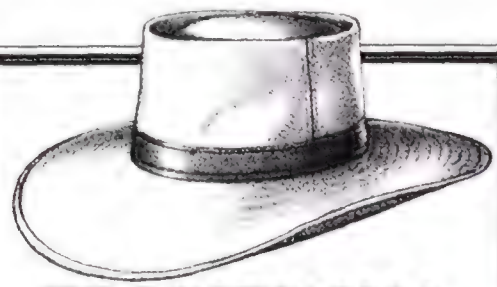
A dauntless Winston Churchill regularly attended the sacrosanct *SPM* teatime.

Surely I was experiencing one of Chile's famous earthquakes, trapped in a building already on the verge of collapse! The tea party crowd remained calm; they lifted their tea cups into the air, delicately, until the tremor subsided. They were accustomed to the disturbance. It happened every 20 minutes when a trolley passed the old building. Valparaíso trolleys, I was to find, were remarkably punctual, and the interruption was to occur regularly all the days I worked in the *SPM* office.

I felt as though I had intruded on a British tomb. Everything was so *old*. The office furnishings had turned the color of petrified wood. The people, too, seemed ancient, a collection of fossils.

Among the relics was a human treasure. Oswald Hardey Evans wrote a historical feature for the *SPM* known as "The Hardey Column."

After 25 years of federal service, the author began writing again, books like The Night Watch, A CIA Memoir.



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USING THIS CHART MAY HELP YOU KNOW YOUR LIMIT.

First, you should understand that drinking any amount of alcohol can impair your ability to drive.

The generally accepted way to measure intoxication is by your Blood Alcohol Concentration (BAC). In most areas, the legal definition of intoxication is .10 percent BAC and above. However, long before you reach .10 BAC, your judgment and motor skills deteriorate rapidly. In fact, some states include the definition of impaired driving ability, which usually begins at .05 percent.

Important factors to keep in mind are how much you've drunk in a given period of time, how much you weigh and whether you've been eating. Your age, individual metabolism and experience with drinking are also factors. However, it simply is not true that beer or wine is less likely to make you drunk than so-called "hard" drinks. A 6-ounce glass of wine, a 12-ounce can of beer or 1½ ounces of 86-proof whiskey have about the same amount of alcohol and will have about the same effect on you.

How to estimate your Blood Alcohol Concentration. Although the effects of alcohol vary a great deal, the average effects are shown in the accompanying chart prepared by the National Highway Traffic Safety Administration. Find your weight in the left-hand column and then refer to the number of drinks you have had or intend to have over a two-hour period. For example, if you weigh 160 pounds and have had four beers over the first two hours you're drinking, your Blood Alcohol Concentration would be dangerously beyond .05 percent, and your driving ability would be seriously impaired—a dangerous driving situation. Six beers in the same period would give you a BAC of over .10 percent—the level generally accepted as proof of intoxication.

It is easier to get drunk than it is to get sober. The effects of drinking do taper off as the alcohol passes through your body, but the drop is slow. In the example above, the person who had six beers would still have significant traces of alcohol in his blood six hours later.

Even if you're not drinking, other drivers may be. Your best protection is still the seat belts in your car. Accidents do happen, and wearing lap and shoulder belts doubles your chances of coming through one alive.

DRINKS (TWO-HOUR PERIOD)

Weight	1½ ozs. 86° Liquor or 12 ozs. Beer											
100	1	2	3	4	5	6	7	8	9	10	11	12
120	1	2	3	4	5	6	7	8	9	10	11	12
140	1	2	3	4	5	6	7	8	9	10	11	12
160	1	2	3	4	5	6	7	8	9	10	11	12
180	1	2	3	4	5	6	7	8	9	10	11	12
200	1	2	3	4	5	6	7	8	9	10	11	12
220	1	2	3	4	5	6	7	8	9	10	11	12
240	1	2	3	4	5	6	7	8	9	10	11	12

BE CAREFUL DRIVING BAC TO .05% | **DRIVING IMPAIRED .05-.09%** | **DO NOT DRIVE .10% & UP**

Source: NHTSA

The chart shows average responses. Younger people generally become impaired sooner, while older people have more vision problems at night. Tests show a wide range of responses even for people of the same age and weight. For some people, one drink may be too many.

Having a full stomach will postpone somewhat the effects of alcohol, but it will not keep you from becoming drunk.

Black coffee, cold showers, or walking around outdoors will do nothing to make you sober. Of course, someone who claims, "I'll be okay as soon as I get behind the wheel," may be making a fatal misjudgment.

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Everyone called him Hardey, and he signed letters with his middle name. When I asked him why, he smiled but didn't answer. Hardey was almost 80. He wore a black beret, a white spade beard and, clamped on a noble nose, square spectacles. He was agile when he moved and articulate when he spoke. In addition to his column, he wrote the *SPM* editorials. He always clutched an unlighted pipe except while pecking at an antiquated typewriter, when he deposited the pipe on a stack of books. When we met he had grandchildren my age, yet Hardey insisted on calling me "Mr. Phillips." He never used my first name in the five years we worked together; nor did he, during that period, light his pipe.

Hardey was born in England shortly after the American Civil War and had immigrated to Chile some 20 years later. He worked as a chemist in the nitrate fields in the boom era when fortunes were scraped from the Atacama Desert, before cheaper fertilizers were produced. When he was transferred to his firm's Valparaíso office Hardey's interest in chemistry waned and his fervor for South American history mounted. He went to work for the *SPM* before the turn of the century. He wrote editorials—in simple, stylish prose—which were remarkably liberal for a newspaper catering to British expatriates. His Hardey Column was a historical mother lode mined by scholars for half a century.

Hardey, I soon learned, managed to dodge assignments outside the office, and he refused to interview people anywhere. He explained that his last street assignment had been 20 years before when he was to review a dance recital in the Valparaíso town hall. The mayor's daughter was to be the principal dancer. Hardey praised the young woman's performance in a review that he wrote, unfortunately, before the recital took place. The town hall burned to the ground two

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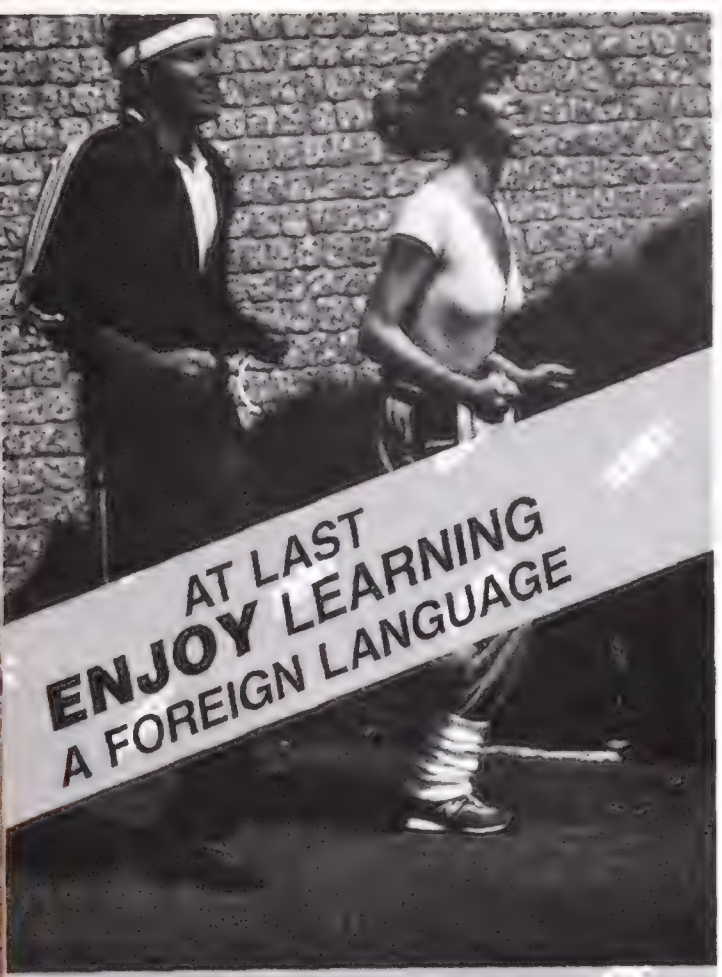

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hours before the show and just after the issue of the *SPM* containing Hardey's glowing review was off the press. After that, Hardey did his work in the office.

Hardey was a widower; his three daughters had married. He spent early-morning hours in walks along the beach, and his evenings with old friends, one a retired sea captain, at his rooming house located on a hill above Valparaíso harbor. When his office work was done he spent hours thumbing through his set of the *Encyclopaedia Britannica*, using a lead pencil to correct the errors he found there. During my first months at the *SPM* Hardey took time to relate to me an oral history of the newspaper.

Oswald Hardey Evans' historical column became a rich source for young scholars.

The *SPM* was a weekly, originally named the *Chilean Times* when first published sometime in the 1850s. Although the masthead carried August 1, 1861, as the first date of publication, the exact date, Hardey told me, was unknown because early issues and archives were lost in a series of earthquakes and fires. Valparaíso was a major seaport before the opening of the Panama Canal, when European merchant ships had to round the Horn to reach the Pacific. The port was a prey for pirates, a magnet for international brigands, and a rest stop for Americans on the long route from the eastern United States to the California gold fields. The *Beagle*, with an obscure scientist named Darwin aboard, had anchored in the harbor for provisioning. Other ships unloaded young Englishmen bent on making South American fortunes. British merchant firms erected their offices, Victorian to the last brick, along the twisting bay-front streets of Valparaíso.

"The *South Pacific Mail*," Hardey related, "told Englishmen when it was raining in London so they could roll up their pants in Chile." British wives slow to learn and read Spanish relished the paper as a mail-order catalog from which they could order from England bolts of cloth, cheeses, patent medicine and boned corsets. Births and deaths and social news were reported by volunteer correspondents from the British communities in Chile. From Antofagasta, the northern port where, the story went, "all water was imported because it had not rained there for 400 years." From Iquique, a booming nitrate center, where the D'Oyly Carte troupe presented Gilbert and Sullivan, and Bernhardt thrilled the saltpeter diggers (but where auditorium lights were never dimmed, not even for the Great Sarah, because the new-rich nitrate barons wanted everyone to see the flashing jewelry that was worn by their wives).

In her best days Iquique claimed to consume more champagne per capita than any other city in the world. An *SPM* correspondent reported the visit of a French champagne magnate who traveled halfway around the globe to pay a courtesy visit to his best customers. After the arduous voyage around

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the Horn he arrived at the dirty clapboard and corrugated-roof town of Iquique. He took one look and, convinced he was the victim of a gigantic joke, sailed back to France, refusing even to step off the ship.

Other correspondents chronicled British life from the capital, Santiago; from Concepción to the south; and even from the British enclave in Punta Arenas on the Strait of Magellan, southernmost city in the world. A British correspondent in Tocopilla once referred to the Chileans living there as "members of the Chilean colony." Some *SPM* subscribers lived on remote Pacific Islands; they had to be patient for weeks while the paper was delivered by sloop.

Among the most loyal subscribers were two-dozen readers in the Falkland Islands. The news was a month old when it reached them. The papers went by land—across Chile, through the Andes, over the vast pampas—to Buenos Aires; from the Argentine capital they were shipped to the faithful in the Falklands.

"The Argentines have their backs up again," Hardey announced one day in 1949 as he dumped a bundle of rolled-up newspapers on my desk. Two dozen copies of the *SPM*, addressed in English to the Falkland Islands, had been returned from the Buenos Aires post office. Each brown-paper wrapper carried the notation, in Spanish, "No such islands known."

I was puzzled until Hardey told me of the fervid controversy which had heated up periodically since 1833. He added that the Argentines rejected the British name for the islands, insisting they be identified as the Islas Malvinas. "Then we'll address the papers to the Malvinas," I said, "and mail them again."

Hardey stiffened. His eyes usually twinkled when he peered over his spectacles; now my suggestion made them harden with the glint of Empire Offended. I prevailed, and the *SPM* shipment began its second journey,

"I inherited Peddar's office. It was like a neglected corner in an old museum."

this time plainly addressed to the Islas Malvinas.

Two months passed.

"Ah *hah*!" Hardey's beard quivered triumphantly as he deposited a familiar packet of newspapers on my desk. The Islas Malvinas shipment had returned to Valparaíso. This time the wrappers were stamped with a British postmark and the bold statement: "Delivered by mistake to the Falkland Islands."

I was prepared to abandon *SPM* subscribers in the Falklands, but Hardey was not. He mailed the bundle of papers, for a third time, to a friend in Montevideo; the wrappers were plain because all mail from Chile to Uruguay went through Buenos Aires. Hardey's friend re-addressed the papers and put them on a ship for the Falklands.

"What the Argentines don't know," Hardey said, "won't hurt them." Henceforth the *SPM* went in plain wrappers through Buenos Aires to Montevideo, then to the Falklands. Subscribers there remained loyal,

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even though it took six weeks to complete the circuitous delivery which neatly skirted the conflict.

"Some of your predecessors were quite eccentric," Hardey told me, describing past *SPM* editors. In its early days, the paper had been the moonlight occupation of Henry Hill, who had immigrated to Valparaíso as the organist for the local Anglican church. Another British editor came to the *SPM* from the *North China Star* in Tianjin (Tientsin); Norman Ingrey held his readers in low regard, claiming they were not interested in world news. He proved his contention by using the same photoengraving from *SPM* shelves for whatever Oriental happened to be in the news. The engraving—zinc on a wooden block—was really of Ingrey's Chinese houseboy, but it was used to illustrate stories about Sun Yat-sen, Chiang Kai-shek, or a Japanese assassin awaiting execution. "No one ever complained," Hardey admitted.

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I was not, Hardey told me, the first American to manage the *SPM*. In the 1920s, a Yankee adventurer named Nelson Rounsevell landed—"like a whirlwind"—in Valparaíso and purchased the paper. Rounsevell jacked up circulation by writing a regular column that described the squabbles between his wife and his mistress. Several of the columns listed the respective merits of the two women. "Rounsevell's worst social habit," Hardey recalled with a shudder, "was *spitting*. I used to wince at first when he spat right over my head at a spittoon in the far corner of the office. Later on I learned to get out of the line of fire. He had a deadly aim, and never imagined that it was not the right thing to do."

I succeeded an Englishman named Thomas Peddar as editor. Peddar had purchased the *SPM* with the idea of passing it to his son, a student at the London School of Journalism. The son was killed in World War II. Peddar was devastated; he managed the

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Santiago's "perfect setting: when clouds parted, snow-covered Andes gleamed."

paper half-heartedly for several years, allowing it to sink into debt and to deteriorate in quality.

I inherited Peddar's office. Peddar had been a mining engineer and an ornithologist. His office was like a neglected corner in an old museum: a collection of stuffed birds perched about the room, dozens of eggs of various sizes and hues nested in dirty cotton, and samples of ore and chunks of alabaster piled on a table. The staff always referred to the room—even after I had occupied it for months—as "Mr. Peddar's office."

Hardey and I once stood at the window of Mr. Peddar's office observing a storm over the Pacific. I mentioned that I remembered a painting titled *Off Valparaíso*. It depicted a sailing ship plowing through heavy waves, and it had hung in the meeting room of my Boy Scout troop in Fort Worth, Texas. "I have a good reproduction of it," Hardey said. "I knew Somerscales when he was painting here in Valparaíso."

I had no experience as a manager, but it was clear that the *SPM* must increase its circulation and cut its losses. One way to trim the budget would be to do something about the afternoon repast known as "the staff

tea." I had assumed that the dozen to 15 persons who appeared for the generous spread were employees, but I found that most of them were simply "friends of Mr. Peddar." Hardey's reaction was quick when I suggested that the *SPM* could no longer afford such largess. "That can't be changed," he said, flatly. "They've been coming here for afternoon tea for years. Where else will they go? I suspect that for some of them it's the only solid meal they have. No, the idea of skimping on tea is quite out of the question."

Another new fiscal policy was easier to implement. I found that more than 200 subscriptions to the *SPM* had not been paid for years, sometimes as long as a decade. Notes on the subscription list explained that the readers were, like the tea guests, "friends of Mr. Peddar." Most responded with a payment when, finally, they were dunned.

British *SPM* readers were not always gracious in expressing their opinions about changes I made in the style and content of the paper. One innovation was the printing of the first comic strip; I decided to run "Blondie" after reading that the antics of the Bumsteads were popular in England, but the news hadn't reached the British colony in Chile. "Cancel my subscription," wrote one reader, "as I want no part of this gaudy new sheet." "I'm sorry I don't have a subscription," wrote another, "so that I could cancel it." A third reader reacted in a letter to the editor:

"Dear Sir,

Those illustrations on one of the last pages, I think they are called 'comic strips.' I do not like them. It is mooted that they are liked by many, and that many businessmen of prestige appreciate them. I do not believe it. This latter I think is a case of minority opinion forcing itself on public notice unjustifiably. . . ."

Some changes which would have been painful, such as releasing employees not really needed, were de-

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layed when I decided that the *SPM* would have to be printed in our own shop. Making a profit from job printing on *SPM* presses which would otherwise be idle was the only way to put the enterprise on a paying basis. For that, the paper would have to relocate to the capital, Santiago, 65 miles inland. Nearly all foreign businesses in Chile had moved their headquarters from Valparaíso to Santiago, and much of the English-speaking population had congregated there.

In 1950, almost a year after becoming the editor of the *SPM*, I moved to Santiago. Hardey remained as head of the Valparaíso office. When I left he gave me a present, his lithograph of *Off Valparaíso*. He had removed it, I learned later, from the wall of his boarding-house room.

An Englishwoman named Florence had tended the Santiago outpost of the *SPM* for many years, answering the telephone and accepting classified advertisements. The Santiago office was as cluttered as the one in Valparaíso, but the junk was modern. Florence was modern, too, with bright spots of rouge on each cheek. When she learned I was from Texas she expressed doubt about a newspaper report that a Texan had paid $100,000 for a one-third interest in a prize bull. I explained that because of lucrative stud fees such a price was not unusual. "For that kind of money," Florence said, "I do hope he got the right part of the bull."

Florence and I got down to business when I raised the subject of the classified advertisements she gathered in Santiago. Many of them were never paid for, even though some clients had placed notices in the *SPM* for years. In the future, I told Florence, she should insist on payment. "But they're. . . ." "I know," I interrupted, "they're friends of Mr. Peddar. Nevertheless. . . ."

The first Santiago issue of the *SPM* was to be produced by six newly hired Chilean printshop workers. None of them spoke or even understood English. A young Australian, Rick Bowers, gave up a teaching position at a British school to be my assistant editor. Together we were to supervise the tricky business of publishing an English-language newspaper with workers who didn't know the language, and who had to use second- and third-hand presses for which Taylor Collins and I had obtained a bank loan.

The printing equipment was installed in a corner of a large commercial plant called Casa MacKenzie. As neither Rick nor I knew anything about printing, we hoped to obtain instant advice from the British management of the place. The *SPM* area of the vast shop was caged off with chicken wire. Elsewhere there were dozens of different presses, stamping machines, cutters and perforating and numbering gadgets. One metal monster produced 100,000 bus tickets each hour, and each ticket shrieked as it was delivered. The noise was thunderous. The workers in the Casa MacKenzie had a theory that a radio with its volume turned high would

Happy lottery winners (author, top right) grace "one of best covers *SPM* ever had."

somehow drown out the noise of the bus-ticket machine. The favorite number on the Chilean hit parade in 1950 was a lusty ballad entitled *"El Perro de Mi Tio Tiene una Tos Terrible"*—"My Uncle's Dog Has a Terrible Cough."

Rick and I had terrible headaches during the week and a day we worked to put out the first Santiago edition of the *SPM*. Eight days to produce a weekly newspaper! That contradicted the logic of making money on *SPM* presses when they would not be occupied with the paper itself. The future looked dismal.

The turn of events became serious when Taylor Collins suffered a severe heart attack. His doctor instructed Taylor to relieve himself of any financial worries, so I signed a series of promissory notes for the amount Taylor had invested in the venture—and found myself the sole owner of the *SPM*. "When we first went into business together," I reminded Taylor, "you said you had been a publisher in the States." "Yes, I had two country weeklies," Taylor said. "I went broke in six months."

Santiago, gray and drab, was hardly a jewel of a city, but it was enhanced by its perfect setting in the lush Central Valley of Chile. When clouds parted the snow-covered Andes gleamed. Rick and I had scant opportunity to enjoy the view, as we spent our daylight hours surviving the clamor of the Casa MacKenzie, searching for ways to reduce *SPM* printing time.

One problem was with the workers, who often celebrated an informal weekly holiday called San Lunes. *Lunes* means Monday in Spanish, and St. Monday is the day Chileans frequently stay home to recuperate from a weekend of drinking. Our most chronic offender was a press operator named Julio. I once asked Julio why he didn't drink more moderately. "Because I pay no attention to the monkeys," Julio moaned. "There is a

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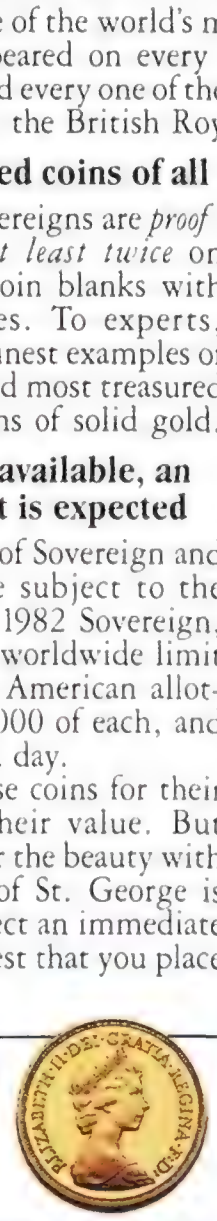

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legend: in your stomach there are many monkeys and in your head seven chairs. Each time you drink a glass of wine a monkey climbs into your head and sits on a chair. Five monkeys in five chairs is fine. Even seven monkeys in seven chairs. But, *patrón*"—Julio clutched his throbbing head—"watch out for that eighth monkey fighting for a seat!"

As weeks passed, Rick and I became more adept and the *SPM* printing run took less time. We were able to address the editorial problems of publishing a newspaper that catered to English and, increasingly, American readers. (Rick managed to upset one American businessman—whom he detested—by calling him in print "the well-known wench expert.")

Once I needed to complete one column of the final page before the *SPM* went to press. We had set in type a two-column space filler, an announcement that "The *South Pacific Mail* is the Newspaper Most Read on the West Coast of South America." I needed to fill only one column, so I condensed the announcement. The result gave British readers a laugh: "The *SPM* is the Newspaper Most Read on the W.C. of South America."

Protests from British readers who had feared the *SPM* would become too Yankee softened in tone. The most acrimonious letters, in fact, were the seething missives sent from Englishmen about other Englishmen. When one English reader in Santiago was not invited to an official function at the British Embassy he questioned the ambassador's lineage in a letter. Another was furious when his name was not on the guest list for an embassy reception marking Queen Elizabeth's Coronation.

By early 1953 all of us had become veterans, and the printing run of the *SPM* became routine, most issues off the press in less than two days. Other days we printed Christmas cards, a guidebook for tourists, and lucrative job printing. We were able to hire

additional workers and pay off debts.

Our good fortune included one stroke of very good luck. Rick and I joined eight workers in purchasing a lottery ticket. It hit a jackpot of $5,000. Our individual shares of $500 were the cause for rejoicement, especially for the workers because the sum represented several months' pay for them. A photograph of all of us displaying our checks made one of the best covers the *SPM* ever had.

In 1954 I left Chile. Rick remained in charge of the *SPM*; we had an agreement that allowed him to accumulate, over a period of time, a percentage of the business. A decade after Rick and I sold it, after some labor disputes, the *SPM* closed down.

Hardey died about the same time, in his bed in his room at the hilltop boardinghouse. When I heard of his death I recalled my final visit to Valparaíso, when Hardey and I stood in Mr. Peddar's old office, looking out over the harbor. I told Hardey I had enjoyed working with him, and with his colleagues.

"You must have found us"—he searched for the word—"*musty*."

I told him I would treasure his gift, the reproduction of *Off Valparaíso*.

"Whistler painted here, too," he said. "Those docks were the subject of his *Nocturne: Blue and Gold*." He looked at me over his square spectacles, then made an unexpected, un-English gesture: he reached out, not to shake my hand, but to cup it, briefly, between his two hands.

I was touched, then, and now I remember the *South Pacific Mail* and, quite fondly, Hardey. They are worth remembering.

"When I left the Valparaíso office, Hardey gave me a present, his lithograph of Somerscales' *Off Valparaíso*. He had removed it from his boardinghouse room."

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Book reviews

W. H. Hudson: A Biography
Ruth Tomalin
Faber and Faber, $24.95

For most people who read books, if W. H. Hudson is known at all, it is as the author of *Green Mansions*, a novel of bittersweet romance set in the Venezuelan forest. Yet there is so much more that is admirable in the varied body of Hudson's work, and in the man himself, that one cannot but rejoice at this new biography by Ruth Tomalin.

Even today the growing numbers of his enthusiasts tend to think of W. H. Hudson as an Englishman. But he became a British subject only in 1900, at the age of 59, and Tomalin rightly places her emphasis on Hudson's early life. A few years before the writer's birth, his New England father, searching for a healthful climate, took his family to the Argentine pampas. There, running sheep-and-cattle ranches, the Hudsons were every bit as much pioneers as were their fellow North Americans then striking out across the Western prairies for Oregon.

For Argentina was a dangerous place. A moat 30 feet wide protected the Hudson's ranch house from bandits and marauding Indians. Added to that, civil war periodically shook the dictatorship of Don Juan Manuel de Rosas. Years later, the former ranch boy wrote about his easygoing father standing unarmed in the yard, calmly dissuading lawless troops bent on pillage, while a timorous house guest stood inside, sword drawn and "trembling and white as a corpse."

All of that, however, was an accepted part of the rough-and-tumble experience of growing up on the frontier. The Hudsons, hardly smothering parents, let their children race their horses as they pleased over the grassy plains. The future writer's gaucho neighbors might have been temperamental and quick with their knives, but they also were vivid companions for a young boy blessed with his own pony in a young land. Don Anastacio Buenavida wore his hair in ringlets and dressed in an embroidered blouse. On his ramblings, the boy chatted with cigar-smoking Doña Pascuala, who once hung her patron saint upside down; there he'd stay, she huffed, until he decided to stop the cloying rains.

Granted the color of the local people, the wildlife of the pampas most fascinated the inquisitive but somewhat shy

W. H. Hudson relaxes in New Forest, near his home in Bedfordshire, England.

rancher's son. Tomalin presents a charming picture of the young naturalist at the age of five seizing the tail of an armadillo and hanging on for dear life as the alarmed creature furiously tries to dig its way underground. Neighbors soon began wondering about the boy who preferred to moon about in wild places, spending hours in snake-infested thistle patches or watching scissor-tail tyrant birds chasing off attacking hawks with cries "like the whetting of a scythe."

This, and very much more, went into Hudson's writing. As a young man, ranging widely in South America to collect specimens for the Smithsonian and the Zoological Society of London, Hudson foresaw, as most people of the time did not, that the old days of open spaces and natural abundance were passing. If any one thing characterizes his books, it is the sense of loss for a once-harmonious world. Thus Hudson became an early conservationist, a staunch activist in the Royal Society for the Protection of Birds.

Yet W. H. Hudson is not simply a polemicist, nor is he merely the author of finely drawn romances and passages on natural history that thrill beyond the revelations of science. A secretive man in his private affairs—Tomalin's research brings to light some rather stunning ex-

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amples—there was something of the Spanish hidalgo about him, as a contemporary noted. And there is more to Hudson's story than that of a self-educated country boy who eventually became a cult figure in London, just as *Green Mansions*, with its psychological insights and sociological implications, is more than an entertaining romance. In both his life and his work, Hudson reveals complex "adventures of mind and spirit," to use Tomalin's words, adventures that lie waiting to be stirred in all of us.

Peter Wild
Professor of English
University of Arizona

The Work Of Augustus Saint-Gaudens
John H. Dryfhout
University Press of New England, $60

At the turn of this century, Augustus Saint-Gaudens (1848-1907) was known as the "official sculptor" of America, an unofficial title that suited him well. His work today is represented across the country in 31 states and the District of Columbia. Our federal city owes much to him; as a member of Teddy Roosevelt's "Art Cabinet," Saint-Gaudens helped to expand the Capitol Mall and plan for the Lincoln Memorial.

Saint-Gaudens was an artist on many levels, able to design U.S. coins, tombs, vases, yachting cups, church windows, plus hundreds of statues and bas-relief portraits. His eclectic tastes were thoroughly American, and so were his techniques. He worked on contract, sold replicas and reductions, cultivated a circle of powerful friends.

With the publication of this stately catalogue raisonné, John Dryfhout has documented Saint-Gaudens' achievements. We can now see the entire span of the sculptor's long, busy career—from the shell cameos he cut in 1861 (as a 13-year-old apprentice) to his final projects, left incomplete when he died of cancer at 59.

Each page abounds with fine black-and-white photos, which tend to show sculpture at its best. The modeling of stone or bronze, the play of light and shadow upon a form—each value instantly emerges in the pictures. Praise for the meticulous printing goes to Dai Nippon, a major graphic-arts press based in Tokyo.

Saint-Gaudens' style is uniquely personal: idealized but real, the bold, simple forms expressing both public and private themes. His great heroes always retain some small, humanizing detail: the wind whips back Admiral Farragut's coat; President Lincoln thrusts his foot forward and grasps a lapel. The effect is simple but eloquent; we see a mythic figure, caught forever in an act of life.

Realism and symbolism mingle most poignantly in Saint Gaudens' low-relief portraits, those paintings in bronze that echo the work of contemporaries such as Eakins, Sargent and Whistler. Some studies are in simple profile, an outline of face and shoulders with just a suggestion of costume. This reticence suggests both intimacy and actuality, as though the people are nothing more, or less, than what we see.

The portraits, often of friends and their families, reflect Saint-Gaudens' elite stature in the Gilded Age. Mark Twain, Henry Adams, Robert Louis Stevenson and William Dean Howells were just a few of his prominent acquaintances, who

included many important architects and musicians as well.

Through these contacts he made a bold impression upon American cultural life. As an impresario, he is remembered for two major achievements: he assisted in assembling the artists who constructed the Columbian Exposition in Chicago (1893), marking the New World's 400th anniversary; and he helped to found the Society of American Artists and the National Sculpture Society.

Saint-Gaudens' fate was to become a public figure, yet the sources of his art lay buried within a complex private life. Two women—a wife and a mistress—shared his love and loyalty. In Cornish, New Hampshire, Augusta Saint-Gaudens provided him with a quiet and orderly haven for work. (This estate is now a National Historic Site, the only one devoted to an American artist.)

Davida Johnson Clark was his inspiration. Her face—strong, high cheekbones and deeply set eyes—rests at the center of Saint-Gaudens' vision. She is Victory, Peace, Liberty; she is the Diana and the Amor Caritas; she is the angel who floats above the heads of the Shaw Memorial on Boston Common; and, in part, she is the veiled thinker of the brooding Adams Memorial in Washington, D.C.

A Saint-Gaudens work in marble portrays the artist's son Homer at age 17 months.

For the gift of this splendid catalog, we owe the artist, the author and the publisher great thanks.

William Howarth
Author of *Thoreau in the Mountains* and *The Book of Concord*

Womenfolks: Growing Up Down South
Shirley Abbott
Ticknor & Fields, $13.95

Shirley Abbott's *Womenfolks* offers the pleasures of thumbing through an intimate family album and being reminded of how unique even commonplace lives are, and how influential on yet unborn generations.

In the South, the past is important not so much for the memory of historical events, but because past events, both communal and private, create habits, attitudes and values that are the legacy of each new child. It is this kind of past, says

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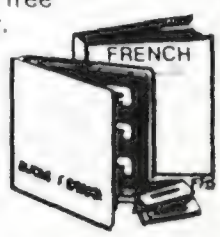

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Abbott, "unanalyzed and undefined," that "hangs upon Southern women as if they were dispossessed royalty." In her finely written memoir, she sets out to define her personal past, knowing she can do so only by understanding the women who are a part of her heritage—plain Southern women who are a complete inversion of the plantation belles of Southern myth.

They are women of personal integrity, who not only believe in themselves but who feel equal to, and sometimes better than, their men. If Abbott grew up "in the simpleminded belief that women were as strong and intelligent as men," it was because she "came from a society that once had believed it." Since reticence is a major virtue among these women, Abbott absorbs more of their values by osmosis than by instruction. Thus, she examines the basic history of the backwoods settlement and the frontier church in order to understand why the women of her family valued hard work and children, and why they were satisfied and strong.

Consequently, if this book is about Shirley Abbott's womenfolk, it is also about a whole class of Southerners whose story is largely unchronicled. Poor, unlettered and indomitable, they were prolific and quaint of speech. Self-sufficient enough to shun civilization, and democratic enough to intermarry with Indians, they were Scotch-Irish backwoods men and women far more numerous in the South than plantation aristocrats. They became fundamentalist Baptists and Methodists, whose only real law was the Bible and whose only real society was the community of their church.

Although Abbott uses standard sources of Southern history to integrate her story, she is not writing history in depth. Interesting facts and statistics are used to set off portraits of her ancestresses, women like Lavisa Eugenia Loyd, who married twice, mothered more than a dozen children—including two sets of twins—ran a self-sustaining farm and was mourned by two counties when she died. In so doing,

DISCOVER A DIFFERENT WORLD
The midnight sun shines strong on the Northwest Territories and Yukon, Canada's last frontiers. Come on up.

Abbott manages to put a human face on history; these faces, in turn, reflect a Southern Americana that few history books do. Similarly, Abbott's account of her failure to experience salvation during a sojourn at a summer Bible camp has its historical roots in the camp-meeting revivals of the 19th century. We are reminded that some things change only to remain the same.

Nowhere does this seem truer than in Abbott's womenfolk. From her ruminating portrait of an 18th-century backwoods ancestress to her own mother, Velma (who moved from farm to town and cannot allow her black help to scrub the wash alone). Abbott writes about women who *do*, women who endure. They are women of simplicity and grit, who "could reason with a mule and shoot a gun," but who "also knew just how to take hold of a baby. . . ." Grandma Lizzie Ethridge, who rode home bareback one night with a panther racing at her horse's tail, also grows exotic flowers and sits in the summer shade teaching a child to crochet. Aunt Frances, an orphan indentured from ages ten to 18, nevertheless is a loving woman who is "endlessly tender" with small children. There are no helpless Southern ladies here.

Abbott ultimately expatriates herself to find her own people "in another country" —New York. She leaves for reasons both philosophical and emotional, but the familial values of the South, and her love for the generations of womenfolk who gave her her identity are in her bones, as this strong and gentle book attests.

Jane DeMouy
Author of *Katherine Anne Porter's Women: The Eye of Her Fiction*

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Carol B. Gartner
Frederick Ungar, $11.95

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much less given her place in the pantheon of American writers with Henry David Thoreau," one might guess that she would like to have this order of distinction reversed. But she agrees with Miss Carson herself that science and literature are identical in discovering and illuminating truth, and in this case are perhaps uniquely inseparable, defining her own aim as that of correcting an imbalance.

Silent Spring is a book "accepted as an important historical document, perhaps even a historical monument" and one that, at the same time, proves the author's ability to "superimpose on her unified scientific presentation the creation of an artistic rhetorical whole."

That Rachel Carson was a superb writer of nature is affirmed by Gartner's painstaking analysis of her work, and eloquent overall judgments. Four books are closely examined: *Under the Sea-Wind,* the first and highest in poetic effect, in which Miss Carson's "gifts as a writer and scientist most perfectly come together"; *The Sea Around Us,* in which facts are imbued "with an enthusiastic respect for the natural world's marvelous system of ecological interrelationships, and with her awe and love for all life"; *The Edge of the Sea,* with its "surge of vitality, with sentences and passages soaring to accumulated intensity through patterns of sound, rhythm, and grammatical structure, while descriptions of rising and falling tides

Rachel Carson, with *Silent Spring* just out, does fieldwork near Maryland home.

gracefully imitate the movements of the water"; and *Silent Spring*, "the lowest point of Carson's poetic writing," yet "still a book of spare beauty with passages of lyrical brilliance."

There are many kinds of nature writers and many ways in which nature is written about. Carson is not in any nature-writer's shadow but is one who, as Gartner says, could write with "passion and vehemence" and whose directness managed to combine "scientific precision with literary artistry."

Gartner's account of Carson's early life requires relatively little space. It could once have been described as "normal," though the road to her achievements and honors is discernible. To be a writer was her first interest, and she found in biology something to write about.

When she approached *Silent Spring* it was to be a book "not about pesticides, but on the broadly philosophical topic of human beings and the natural world." It did become that, and perhaps most lastingly will be that. But first of all it represented a synthesis of "information never before brought together in one volume" and a polemic with "devastating" impact.

A chronology conveying a sense of history, and a complete bibliography add to this book's worth.

Henry Beetle Hough
Author and (since 1920) editor of the *Vineyard Gazette*

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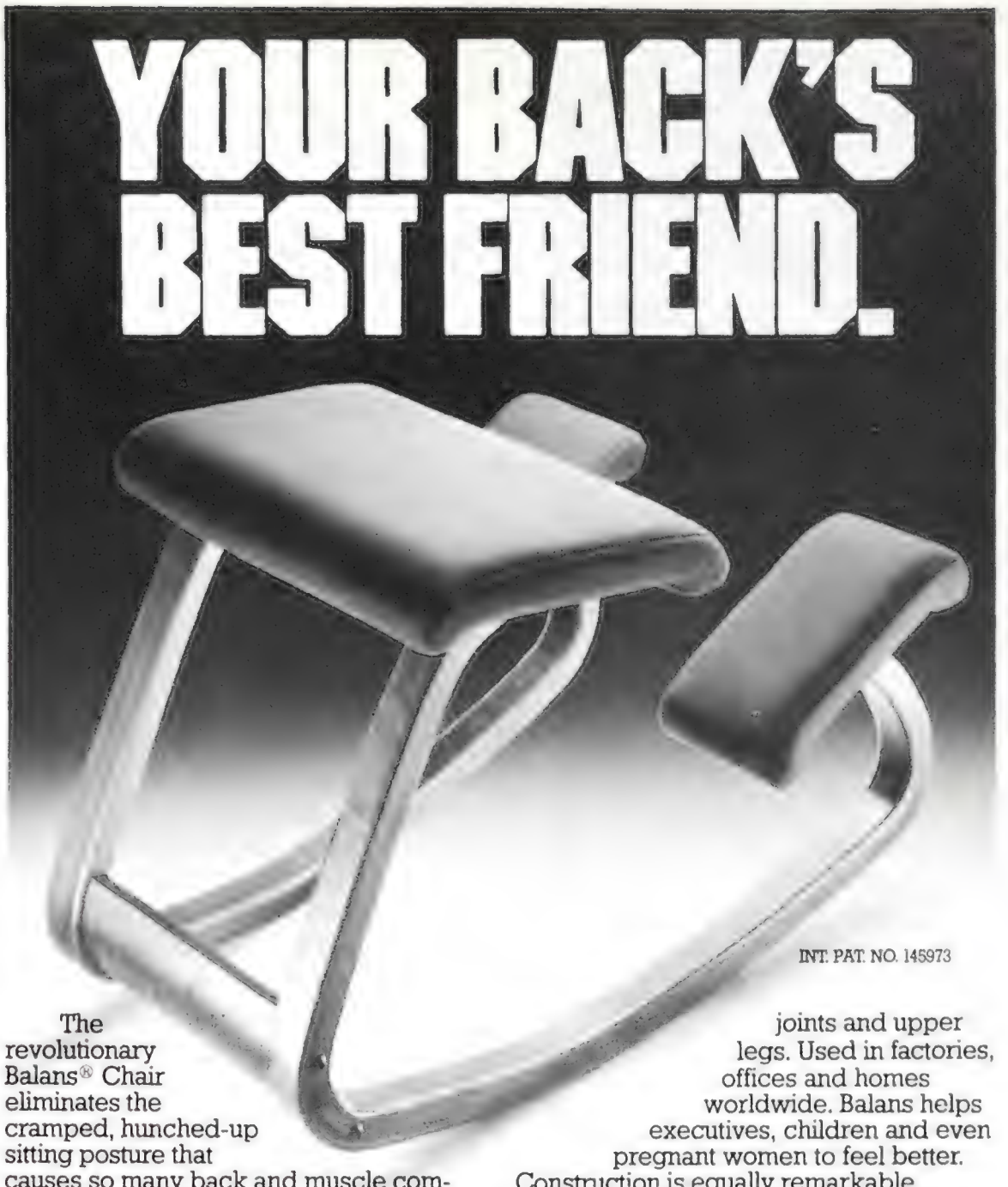

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Additional reading

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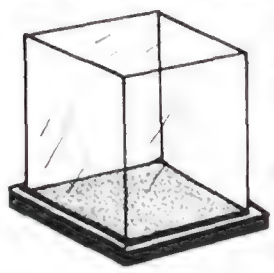

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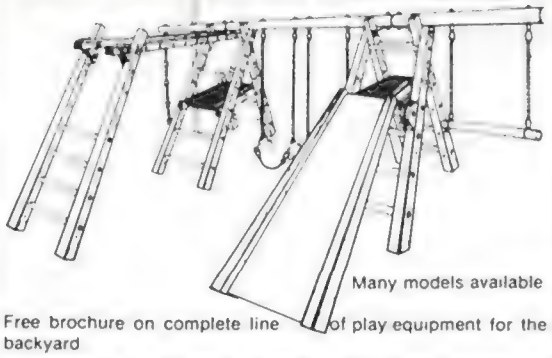

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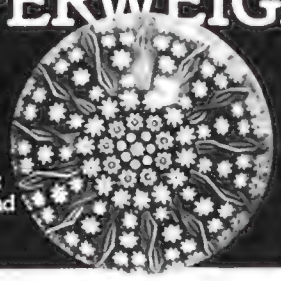

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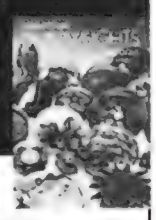

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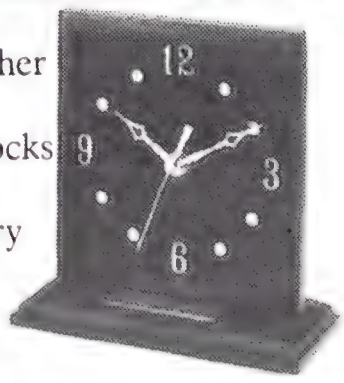

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Smithsonian highlights

The Arts and Industries Building, home of the popular steam engines that are fired up regularly by exhibit specialist Brian Jensen, now has another "performing" machine—the Welte Philharmonic (p. 133). This player pipe organ, which graces the central rotunda, is equipped with a drum and triangle in addition to its 183 pipes. Jensen plans to roll through a few selections—anything from a Strauss waltz to *Ragging the Scale*—at least once a day, subject, of course, to demand.

The end of the month brings the Festival of American Folklife to the Mall once again, this year honoring New Jersey and the nation of France. From June 23-27 and June 30-July 4, tents and outdoor stages will offer crafts, demonstrations, ethnic food and evening lawn concerts.

Special June exhibits and events

National Air and Space Museum
Stars (June 9-indefinite) Major new exhibit features 14-foot "walk-through" sun; hologram showing galaxy with 100 billion stars.
Our Mighty Yellow Dwarf: The Sun (June 4; 9 A.M.) Monthly sky lecture.

National Portrait Gallery
Mr. Sully, Portrait Painter: The Works of Thomas Sully (1783-1872) (June 3-September 5) Eighty works, including portrait of Queen Victoria.

National Museum of Natural History
The Heritage of Islam (June 2-September 5) See article starting on page 60.
The Silk Route and the Diamond Path (through June 30).

National Museum of American History
Abel Gance: The Charm of Dynamite and *Abel Gance: Yesterday and Tomorrow* (June 8, 9; 12:30 P.M.; Carmichael Auditorium) Two documentaries.

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Freer Gallery of Art
Pre-Islamic Metalwork from the Near East (through August) Silver, gold and bronze objects from fifth century B.C. to sixth century A.D.

Renwick Gallery
Fourth of July Soul Food Picnic (June 29; noon) Pearlie Brown, a Washingtonian who specializes in "down home" Southern cooking, prepares sweet-potato pie, black-eyed peas, barbecue sauce.

Hirshhorn Museum & Sculpture Garden
Friedel Dzubas (June 16-August 14) First complete retrospective includes 46 paintings done since 1949.

Cooper-Hewitt Museum (New York)
Frank Lloyd Wright: Early Years, Early Associates (through September 4) Emphasis on how Wright's style developed.

National Museum of American Art
Americans in Brittany and Normandy: 1860-1910 (June 10-August 14) Whistler, Hassam, Beaux and 68 other artists.

Summer hours

The following five museums on the Mall will remain open until 7:30 P.M. daily from Memorial Day through Labor Day: NASM, NMAH, NMNH, HM&SG and the castle.

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Smithsonian events

For price information and tickets to Resident Associate events, call 357-3030:

Fanfare for New Smithsonian Directors (June 20, June 30) Evenings with Walter J. Boyne and Sylvia H. Williams include lecture followed by gala reception.

An Evening with Friedel Dzubas and Charles Millard (June 16; 8 P.M.) Artist discusses his work with Hirshhorn's chief curator of painting and sculpture.

Jazz Into the Night (June 1; 7 P.M.) Buck Creek Jazz Band performing in NMAA/NPG courtyard.

A Tribute to Abel Gance (June 7, 14; 7:30 P.M.) Films include *Lucrèce Borgia, J'Accuse.*

Marvels of the Deep: The Art of Underwater Photography (June 13; 8 P.M.) Professional diver and underwater cinematographer shows films, discusses work.

America's Heritage: Collecting Family Lore (June 2; 6 P.M.) Amy Kotkin describes forms of family folklore in slide-illustrated lecture.

Tuesday Mornings at the Smithsonian (June 7, 14, 21, 28; 10:45 A.M.) New weekly series offers lectures by Smithsonian and visiting scholars, preceded by coffee and rolls. Older citizens are especially invited.

Smithsonian on the air

This month, "Here at the Smithsonian," a new series of two-minute TV features, looks at the *Philadelphia*, a Revolutionary War gunboat retrieved from Lake Champlain, and explores the lure of modern Scandinavian design. The June listings for Radio Smithsonian include the beginning and end of the Universe, Antarctic discoveries and the mysteries of the human brain. To find out what stations in your area carry these TV and radio programs, write: Office of Telecommunications, MNH Room C222B, Washington, D.C. 20560.

Exhibition catalogs

In response to requests from Associates around the country, the Smithsonian Institution is pleased to announce that, whenever possible, catalogs for exhibitions at the Smithsonian will be available through mail order.

Catalogs available at this time are: *The Silk Route and the Diamond Path* ($47.50 cloth; $27 paper); *The Heritage of Islam* (booklet, $6.50); *Directions 83* ($5); *Joseph Stella* ($4.95). To order, send check or money order to: Museum Shops, Smithsonian Institution, 600 Maryland Avenue, S.W., Rm. 295, Washington, D.C.

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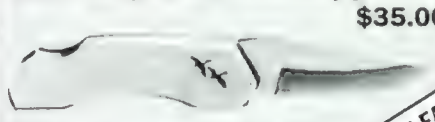

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Smithsonian Institution Traveling Exhibition Service

SITES circulates exhibitions to hundreds of cities outside Washington. To sponsor a show in your community, write: SITES, Smithsonian, Washington, D.C. 20560. Here are some June exhibits:
Canton, Georgia (June 11-July 10) *Odyssey: Mirror of the Mediterranean,* Etowah Bank.
Kansas City, Missouri (June 18-July 17) *The Seasonal Trade: Holiday Gift and Greeting Cards,* Kansas City Museum.
Hempstead, New York (June 18-September 4) *The Image of the Black in Western Art,* Nassau County Black Historical Museum.
Columbus, Ohio (June 18-July 17) *Embroideries by the Children of Chijnaya,* Public Library.
Dallas (June 18-July 30) *Traditional Crafts of Saudi Arabia,* Southwest Museum of Science and Technology.

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Begin your Smithsonian visit at the Associates Reception Desk in the castle where you will receive special printed materials as well as complete details about your benefits, including a slide/lecture orientation of the 13 museums, dining in The Court, discounts in the shops. The desk is staffed 10 A.M. to 4 P.M. daily.

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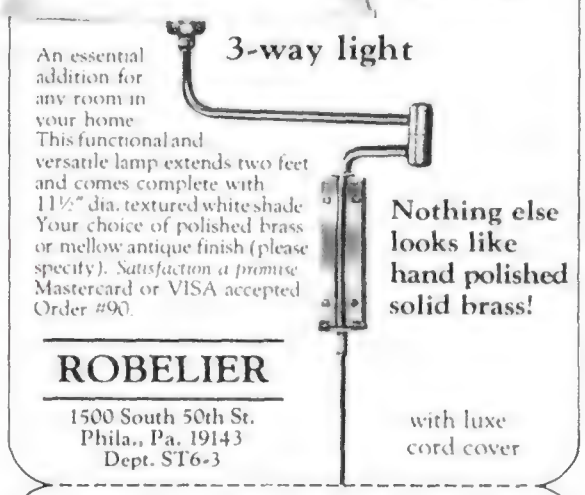

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Honoring black American leaders

At the Smithsonian's Anacostia Neighborhood Museum, 36 portraits salute a diversity of achievement

On a hot summer night in 1937, a young boxer named Joe Louis KO'd James Braddock in the eighth round to become the heavyweight champion of the world. All over the country, jubilant blacks celebrated—it was a symbolic victory for every one of them.

Almost 20 years later, contralto Marian Anderson triumphed in a very different arena when she made her debut at the Metropolitan Opera as Ulrica in Verdi's *Un ballo in maschera*. She was the first black to sing there.

Joe Louis and Marian Anderson are two of 36 black Americans who are being honored this summer for their influence on American life. "Portraits in Black: Outstanding Americans of Negro Origin" runs through August 21 at the Smithsonian's Anacostia Neighborhood Museum.

The portraits in this show were commissioned during the 1940s and '50s by the Harmon Foundation, an experimental philanthropic organization. Two artists were hired to do the paintings, Betsy Graves Reyneau, granddaughter of a noted Michigan abolitionist, and Laura Wheeler Waring, an Afro-American.

Along with the legendary figures of Joe Louis, Marian Anderson, George Washington Carver and others, there are many black Americans in the show who are not as widely known. Anna Arnold Hedgeman (right), for example, devoted her career to the improvement of the social and economic conditions of black people. For many years a YWCA executive, she served in Washington during the 1940s as director of the National Council for the Fair Employment Practices Committee. When Congress failed to pass legislation for a permanent FEPC, she resigned her post against the wishes of President Truman, who praised her efforts.

"Portraits in Black" reminds us that behind-the-scenes people like Anna Hedgeman have contributed as much to the richness of our culture as those whose careers developed under the lights.

Constance Bond

Contralto Marian Anderson made Metropolitan Opera debut in 1955.

George Washington Carver helped develop new crops for the South.

YWCA executive Anna Arnold Hedgeman worked for equal rights in Washington.

Heavyweight championship title went to Joe Louis after 1937 Chicago bout.

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Grand Canyon August 12-22 or August 26-September 5: A sublime spectacle, seen on a raft trip down the Colorado River.

Isle Royale and Minnesota's North Shore August 19-28: Hike through the pristine wilderness of forests and lakes in the northwest corner of Lake Superior.

Colorado Railroad and Mining History August 20-28: Trace the colorful history of the Old West from Denver to Durango.

Along the Bozeman Trail August 20-27: Study Northern Plains Indians history with visits to Crow Indian Fair, Custer's Battlefield, the Big Horn Mountains and Yellowstone National Park.

Bryce, Zion and the Grand Canyon September 5-13: Hike spectacular trails while learning about the geology, wildlife and flora of these national parks.

Pacific Northwest September 6-15: From lush rain forests on the Olympic Peninsula to quiet coves on the San Juan Islands, enjoy vigorous hikes while staying at charming lodges.

Boston September 14-18: Study the city's celebrated past and vibrant present with walking tours and visits to historic homes and museums.

Canyon & Mesa Archaeology September 16-27 or September 30-October 11: Enjoy autumn at Mesa Verde, Canyon de Chelly, Chaco Canyon and Indian reservations.

California Wine Country October 2-8: Introduction to wines of Napa, Sonoma and Mendocino with noted wine experts.

Philadelphia October 5-9: A local historian reveals an inside view often missed by the casual visitor.

Chesapeake Birds October 8-15: From Chincoteague, Virginia, to Cape May, New Jersey, observe vast flocks of migratory birds.

Sapelo Island November 2-7: Camp on unspoiled beaches while studying the ecology of this Georgia barrier island.

New York November 17-20: Enjoy a weekend exploring Manhattan's museums and cultural life.

Washington "Anytime" Weekend: An economical and convenient way to visit your choice of Smithsonian museums. Package includes hotels, meals, Tourmobile and exclusive tour of Smithsonian castle. Application and payment must be received at least ten days prior to arrival.

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Sailing the Greek Islands August 25-September 7: After three days in Athens and visits to Delphi, Mycenae and Corinth, board the luxurious four-masted yacht *Sea Cloud* for the ultimate seafaring adventure including Delos, Santorini and Asia Minor.

Paris and Provinces August 28-September 11: Six days in Paris with walking tours, special seminars at the Louvre and other museums, followed by a choice of travel to Provence or Burgundy.

Oxford/Smithsonian Seminar September 9-24: Live in medieval or modern "digs," dine at high table, and enjoy the special ambience of this famous university town. Oxford faculty lead classes and field trips in art, literature, history, archaeology, manuscripts, and science and belief.

Black Sea Passage September 11-24: Follow the ancient route of Jason and the Argonauts, cruising from the Aegean to the Black Sea. The *Argonaut*'s ports will include Nessebur, Bulgaria; Constanta, Romania; Odessa, Yalta and Istanbul.

Scotland September 23-October 7: Special walking tours in Edinburgh plus visits to castles, abbeys, battlefields, archaeological sites, and enchanting countryside.

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Lost America: Myth and Reality October 2-7: Dean Snow, renowned author, archaeologist and consultant to the National Geographic Society, discusses in generously illustrated lectures important archaeological sites in the news today, including the great burial mounds, gigantic systems of geometric earthworks, and the temple builders who were inspired by Mesoamerican cultures.

World War I Aviation October 16-21: World-renowned experts Jack Bruce, Peter Grosz, Walter Boyne, Donald Lopez and others from the National Air and Space Museum shed new light on the brave pilots and the evolution of their aircraft.

Aircraft Restoration: How To October 23-27: The master craftsmen of the National Air and Space Museum share their many techniques in workshops at the Paul E. Garber Facility (Silver Hill).

American Antique Furniture October 23-28: Connoisseurship of masterpieces, 1650-1840. Includes great collectors, detection of fakes, care of antiques and tours of Winterthur Museum and the Diplomatic Rooms at the Department of State.

Quilted Clothing November 6-11: Lectures and workshops with noted designer and author Virginia Avery, who provides designs, ideas and guidance.

Irresistible Magazine Writing November 13-18: Lectures and creative workshops with Edwards Park, lively, irreverent originator of the *Smithsonian* column "Around the Mall and beyond."

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By James Cox

In which we prove that lying is no laughing matter

An editor I know has suggested that it might be fun to do a "humorous" piece about lies and lying. "Just think of Baron Munchausen and Pinocchio's nose," he said. "Make it a forked-tongue-in-cheek sort of thing!" And so on in that vein. He even thrust at me a dog-eared manuscript that contained, he said, some very funny ideas for a book on lying that he had intended to write when he got the time. It was called *Lie Father, Lie Son*. "You'll love it," he assured me. "Really. It's chock full of very funny ideas."

Honest fellow that I am, I pointed out that I was ill-equipped to handle the subject of lies, having had so little practice at it. "That's getting into the spirit of the thing!" he cried, clapping me on the back with enthusiasm.

I sat at my desk. His enthusiasm was not catching. Desperate for inspiration, or at the least some very funny ideas, I hauled out *Lie Father, Lie Son*. It was a lengthy chapter outline. A sampling:

> 1—The Truth, Forsooth!: Honesty is the worst policy. 2—A Day in the Lie Of: Healthy lying day of typical American family, starting with breakfast evasions.

I read it all. When I was finished I did not feel a bit exhilarated.

Thou shalt not bear false witness. . . . Father, I cannot tell a lie, I have this little hatchet. . . . Oh, what a tangled web we weave when first we practice to deceive. . . . The whole truth and nothing but the truth, so help you. . . .

These were the truths I had been trying to live by, given a momentary lapse or two, for half a century. These were the maxims I had preached to my children. If I was going to come up with a few belly-jigglers on the subject of lying, I needed help.

In the library I found *Lying: Moral Choice in Public and Private Life*. It was written by Sissela Bok, a lecturer on ethics and moral philosophy at Harvard. Nearby on the shelf was *The Right to Lie*, by psychologist Robert L. Wolk and writer Arthur Henley.

I took both books home and read them. Funny? As 19th-century poet James Russell Lowell once wrote: "Truth forever on the scaffold. Wrong forever on the throne." Too grim a view, you say? Consider the first two sentences of the Wolk-Henley work: "Everyone lies. And the person who denies that he lies is the most egregious liar of all." Or Bok's belief that in the absence of clear social guidelines and in an atmosphere of political corruption, casual lying has become widespread in America.

Bok's basic point, that lying destroys the fabric of trust that allows society to function, is not new. St. Augustine and Immanuel Kant both held that it is never permissible to tell a lie. Machiavelli, though, approved of the practice in princes, and offered lessons. Nietzsche okayed mendacity, at least for the exceptional hero, the Superman.

Lately, more and more people seem to think that lying is permissible. French psychiatrist Marcel Eck, for example: "A society in which all truths were bluntly exposed would be more like a hell than a paradise."

This is pretty much the stand taken by Wolk-Henley, who purport to show the reader how to lie without feeling guilty. It was all distressingly like *Lie Father, Lie Son*. W-H did include what was billed as a humorous anecdote about showman P. T. Barnum. It seems he once avoided a technical lie, but still fooled paying customers into moving through his freak show faster by putting up a sign near the exit: "This Way to the Egress!"

Frustrated, I went to bed and had this weird dream: I was sitting in a great hall of white marble and puffy clouds. On tiers of benches around me sat some of the world's most renowned idealists—and cynics. Cicero, Montaigne, Machiavelli, Shaw, Voltaire, Wilde, the whole crew. They were hotly debating the morality of truth, deceit and related matters. Samuel Butler stood up and announced, "Any fool can tell the truth, but it requires a man of some sense to know how to lie well." And Abe Lincoln responded, "No man has a good enough memory to be a successful liar."

It went on like that. Montaigne said, "I speak truth, not as much as I would, but as much as I dare; and I dare a little the more as I grow older." Shakespeare, giggling, answered, "Lord, Lord, how subject we old men are to the vice of lying!" At that, everyone looked at me. I gulped and said, "Well, maybe a few white lies. . . ."

Immediately everything started to get hazy, clouds of mist obscured the debaters, and a kind of expectant electricity filled the air. That's when the Rev. Henry Ward Beecher stormed in, accompanied by two angels blowing horns. "There is no such thing as white lies," he cried ungrammatically. "A lie is as black as a coal-pit, and twice as foul!"

There was an instant of sudden silence, and then this VOICE that I will not even attempt to describe boomed out, "GO LAUGH AT THAT!"

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